DAMACHARLA SAKKUBAYYAMA GOVERNMENT DEGREE COLLEGE FOR WOMEN :: ONGOLE.

SOFT, COMMUNICATION & ICT SKILL

D.S. GOVT DEGREE COLLEGE FOR WOMEN

Re-Accredited at 'B' Level by NAAC

4th Lane, 11th Cross Road, Bhagya Nagar,

ONGOLE – 523001. Prakasam Dist.

ANDHRA PRADESH.

DS GOVT DEGREE COLLEGE FOR WOMEN,ONGOLE.

13/06/2019

CIRCULAR

A certificate course on "Soft, Communication & ICT Skills" will be offered by the Jawahar Knowledge Centre(JKC) from 17.06.2019. We are informing all the III Year Students that they should register for the course if they are interested. Students who successfully complete the course will be given certificates.

D. Anjaneyulu

PRINCIPAL (FAC)
DS GOVT. DEGREE COLLEGE FOR WOMEN
ONGOLE-523 001.

P. Yamini
V. K. Vijaya
A. V. Subhashini

DS GOVT DEGREE COLLEGE FOR WOMEN :: ONGOLE

Soft, Communication & Computer Skills(ICT) III Year Students

S.No	Year	Course	Group	Adm No.	Name of the Student	Caste	Signature
1	III	BCOM	BZC	4345	A USHARANI	SC	A. usharani
2	III	BSC	BZC	4280	D SUPRIYA	SC	D. supriya
3	III	BSC	BZC	4347	D SUSHMA BAI	ST	D. SUSHMA BAI
4	III	BSC	BZC	4286	D KOTESWARI	SC	D. koteswari
5	III	BSC	BZC	4282	J SUJATHA	SC	J. Sujatha
6	III	BSC	BZC	4279	K KALPANA	SC	K Kalpana
7	III	BSC	BZC	4278	N PALLAVI	SC	N. Pallavi
8	III	BSC	BZC	4284	P SONIA	SC	P. SONIYA
9	III	BSC	BZC	4288	S YEMIMA	SC	S. yemima
10	III	BSC	BZC	428[illegible]	T DIVYA	SC	T. Divya
11	III	BSC	BZC	4283	U POOJA	SC	U. POOJA
12	III	BSC	BZC	4281	Y SANDHYA	SC	Y. Sandhya
13	III	BCOM	CA	4335	B MOUNIKA	SC	B mounika
14	III	BCOM	CA	4331	B GOWTHAMI	SC	B. Gowthami
15	III	BCOM	CA	4333	CH VIJAYALAKSHMI	OC	CH. vijayalakshmi
16	III	BCOM	CA	4343	CH VANAJA	SC	ch. Vanaja
17	III	BCOM	CA	4334	D SRAVANTHI	SC	D. sravanthi
18	III	BCOM	CA	4320	D ROSE MARY	SC	D. Rosemary
19	III	BCOM	CA	4318	D BHARGAVI	SC	D. Bhargavi
20	III	BCOM	CA	4319	E ESTHER RANI	SC	E. Esther Rani
21	III	BCOM	CA	4340	E DIVYA	SC	E. Divya
22	III	BCOM	CA	4344	J SANDHYA	SC	J. Sandhya
23	III	BCOM	CA	4336	K LAVANYA	SC	K. Lavanya

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Soft, Communication & Computer Skills(ICT)

S.No	Year	Course	Group	Adm No.	Name of the Student	Caste	Signature
24	III	BCOM	CA	4329	M MOUNIKA	ST	M. Mounika
25	III	BCOM	CA	4321	M DIVYA	SC	M. Divya
26	III	BCOM	CA	4328	P NANDINI	SC	P. Nandini
27	III	BCOM	CA	4322	P VANITHA	SC	P. vanitha.
28	III	BCOM	CA	4342	P KAVITHA	SC	P. Kavitha
29	III	BCOM	CA	4324	S VARSHITHA	SC	S. Varshitha
30	III	BCOM	CA	4325	T CHANDANA	SC	T. Chandana
31	III	BCOM	CA	4341	T MOUNIKA	SC	T. Mounika
32	III	BCOM	CA	4320	V KOTI RATHNAM	SC	V. Koti Rathnam
33	III	BCOM	CA	4330	Y SWARUPA	SC	Y. Swarupa
34	III	BCOM	CA	4332	Y ISHWARYA	SC	Y. Ishwarya
35	III	BCOM	CA	4443	Y PRIYANKA	SC	Y. Priyanka
36	III	BCOM	GEN	4317	K SAMPOORNA	SC	K. Sampoorna
37	III	BA	HEP	4313	A SUNEETHA	SC	A. Suneetha
38	III	BA	HEP	4301	A SIREESHA	SC	A. Sireesha
39	III	BA	HEP	4293	A JYOTHI	SC	A. Jyothi
40	III	BA	HEP	4291	A PRAVALIKA	SC	A. Pravalika
41	III	BA	HEP	4303	A SPANDANA	SC	A. Spandana
42	III	BA	HEP	4300	CH SONIYA	SC	Ch. Soniya
43	III	BA	HEP	4312	D ANUSHA	ST	D. Anusha.
44	III	BA	HEP	4305	G AMULYA	SC	G. Amulya
45	III	BA	HEP	4302	G ANUSHA	SC	G. Anusha.
46	III	BA	HEP	4304	K RASI	SC	K. Rasi

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DS GOVT DEGREE COLLEGE FOR WOMEN :: ONGOLE

Soft, Communication & Computer Skills(ICT) III Year Students

S.No	Year	Course	Group	Adm No.	Name of the Student	Caste	Signature
47	III	BA	HEP	4314	K BINDU PRIYA	SC	K. Bindu Priya
48	III	BCOM	HEP	4346	M SUPRAJA	SC	M. Suprajа
49	III	BA	HEP	4308	N KAVITHA	SC	N. Kavitha.
50	III	BA	HEP	4307	N RAMYA	SC	N. Ramya
51	III	BA	HEP	4294	P KRUPAVATHI	SC	P. Krupavathi
52	III	BA	HEP	4311	P DIVYA	SC	P. Divya
53	III	BA	HEP	4298	P HANUMA	SC	P. Hanuma.
54	III	BA	HEP	4296	S VENNELA	SC	S. Vennela
55	III	BA	HEP	4299	T MANEESHA	SC	T. Maneesha
56	III	BA	HEP	4292	T MOUNIKA	SC	T. Mounika
57	III	BA	HEP	4310	T LAKSHIMI BHARGAVI	BC.A	T. Lakshmi bhargavi
58	III	BA	HEP	4295	Y NIKHITHA	SC	Y. Nikitha
59	III	BA	HTP	4315	A INDIRA KUMARI	BC.B	A. INDIRA kumari
60	III	BA	HTP	4316	D PRAMEELA	SC	D. Prameela
61	III	BSC	MPC	4258	SK ANABI	BC-E	Sk. Anabi
62	III	BSC	MPCS	4261	CH SRIDEVI	SC	CH. Sridevi
63	III	BSC	MPCS	4270	CH NITYA SRI	SC	CH. Nitya Sri
64	III	BSC	MPCS	4276	D VENNELA	SC	D. Vennela
65	III	BSC	MPCS	4259	D SANDHYARANI	SC	G. Sravani
66	III	BSC	MPCS	4269	G SRAVANI	SC	G. Sravani
67	III	BSC	MPCS	4260	K DHANA LAKSHMI	SC	K. Dhana Lakshmi
68	III	BSC	MPCS	4274	K AHAJYA RANI	SC	K. Ahajya Rani
69	III	BSC	MPCS	4277	P ROOPA	SC	P. Roopa.

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DS GOVT DEGREE COLLEGE FOR WOMEN :: ONGOLE

Soft, Communication & Computer Skills(ICT) III Year Students

S.No	Year	Course	Group	Adm No.	Name of the Student	Caste	Signature
70	III	BSC	MPCS	4262	P SUBRAVATHAMMA	SC	P. Subravathamma
71	III	BSC	MPCS	4348	P HARITHA	SC	P. Haritha
72	III	BSC	MPCS	4267	P SUNITHA	SC	P. Sunitha
73	III	BSC	MPCS	4271	S MEGHANA	SC	S. Meghana
74	III	BSC	MPCS	4275	T ANUSHA	SC	T. Anusha.

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దామచర్ల సమ్మక్క అమ్మ
ప్రభుత్వ మహిళా డిగ్రీ
కళాశాల; బ్రంగోలు
ఉపయోగ్ నాలెడ్జ్ సెంటర్
రెండవ బ్యాచ్ 2019-20
తేది: 01-08-2019

keyboard

DSGDCW/OGL 2010-11

keyboard

keyboard

CERTIFICATE

JKC

This is to Certify that

Miss. U. Pooja

D/o U. Venkata Rao with Regd. No. 4283/Y123063012

Sucessfully completed the 250 hours Jawahar Knowledge Centre Training Program in Communication and Soft Skills, Analytical Skills & Technical Skills

at DS Govt. Degree College for Women, Ongole

from 17/06/2019 to 28/09/2019

Jawahar Knowledge Centre
Co-ordinator

D.S. GOVT. DEGREE COLLEGE FOR WOMEN ONGOLE
Dt.....
College Seal

Principal & Chair Person
Jawahar Knowledge Centre
DS Govt Degree College for Women
Ongole

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CERTIFICATE

JKC

This is to Certify that

Miss. M. Divya

D/o M. Sainu with Regd. No. 4321/4177063013

Sucessfully completed the 250 hours Jawahar Knowledge Centre Training Program in Communication and Soft Skills, Analytical Skills & Technical Skills at DS Govt. Degree College for Women, Ongole

from 17/06/2019 to 28/09/2019

Jawahar Knowledge Centre
Co-ordinator

D.S. Govt. Degree College for Women Dt. ONGOLE
College Seal

Principal & Chair Person
Jawahar Knowledge Centre
DS Govt Degree College for Women
Ongole

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CERTIFICATE

JKC

This is to Certify that

Miss. D. Sushmabai

D/o D. Bode Naik with Regd. No. 4347/ 4173063003

Sucessfully completed the 250 hours Jawahar Knowledge Centre Training Program in Communication and Soft Skills, Analytical Skills & Technical Skills

at DS Govt. Degree College for Women, Ongole

from 17/06/2019 to 28/09/2019

Jawahar Knowledge Centre
Co-ordinator

Collage Seal
D.S. GOVT. DEGREE COLLEGE FOR WOMEN ONGOLE

Principal & Chair Person
Jawahar Knowledge Centre
DS Govt Degree College for Women
Ongole

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CERTIFICATE

JKC

This is to Certify that

Miss. P. Hanuma

D/o P. Narasimha Rao with Regd. No. 4298/ Y171063020

Sucessfully completed the 250 hours Jawahar Knowledge Centre Training Program in Communication and Soft Skills, Analytical Skills & Technical Skills

at DS Govt. Degree College for Women, Ongole

from 17/06/2019 to 28/09/2019

Jawahar Knowledge Centre
Co-ordinator

Govt. Degree College for Women Dt..... ONGOLE College Seal

Principal & Chair Person
Jawahar Knowledge Centre
DS Govt Degree College for Women
Ongole

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Name Of The Office .....

Attendance Register

Month June
Year 2019

S. No.	NAME	Designation	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Remarks
1.	A. Usha Rani																		X	X	X	X	X	a	S	X	X	X	X	a	X	S		
2.	D. Supriya																		X	a	a	X	X	X	U	X	X	X	X	X	X	U		
3.	D. Sushma Bai																		X	X	X	X	X	X	N	X	X	a	X	X	X	N		
4.	D. koteswari																		X	X	X	X	X	X	P	X	X	X	a	X	a	P		
5.	J. Sujatha																		a	X	X	X	X	X	A	X	a	X	X	X	X	A		
6.	K. kalpana																		X	X	X	X	a	X	Y	a	X	X	X	X	X	Y		
7.	N. Palavi																		X	a	X	X	X	X		X	X	a	X	X	X			
8.	P. Sofia																		X	X	X	a	X	X		X	X	X	X	X	X			
9.	S. Yemima																		a	X	X	X	X	X		X	a	X	X	X	a			
10.	T. Divya																		X	X	X	X	X	a		X	X	X	X	X	X			
11.	U. Pooja																		X	X	X	X	X	X		X	X	X	X	X	X			
12.	Y. Sandhya																		X	a	X	X	X	X		X	X	X	X	X	X			
13.	B. mounika																		X	X	X	X	X	X		X	X	X	a	X	X			
14.	B. Gowthami																		X	X	a	X	X	X		X	X	X	X	X	X			
15.	Ch. Vijaya lakshmi																		X	X	X	X	X	a		X	X	X	X	X	X			
16.	Ch. Vanaja																		X	X	X	X	X	X		X	a	X	X	X	X			
17.	D. Sravanthi																		a	X	X	X	X	X		X	X	a	X	X	X			
18.	D. Rose mary																		X	X	X	X	X	X		a	X	X	X	X	X			
19.	D. Bhargavi																		X	a	X	X	X	X		X	X	X	X	X	X			
20.	E. Esther Rani																		X	X	X	X	X	X		X	X	X	X	X	a			
21.	E. Divya																		X	X	X	X	a	X		X	X	X	a	X	X			
22.	J. Sandhya																		X	X	X	X	X	X		X	X	X	X	X	X			
23.	K. Lavanya																		X	X	X	X	X	X		a	X	X	X	X	X			
24.	M. mounika																		X	a	X	X	X	X		X	X	X	X	X	X			
25.	M. Divya																		X	X	X	X	X	a		X	X	a	X	X	X			
26.	P. Nandini																		a	X	X	X	X	X		X	X	X	a	X	X			
27.	P. Vanitha																		X	X	X	X	X	X		a	X	X	X	X	X			
28.	P. kavitha																		X	X	X	a	X	X		X	X	a	X	X	a			
29.	S. vanshitha																		X	X	a	X	X	X		X	X	X	X	X	X			
30.	T. Chandana																		X	X	X	X	X	X		X	X	a	X	X	X			
31.	T. mounika																		X	a	X	X	X	X		X	X	X	X	X	X			
32.	V. koti Rathnam																		X	X	X	X	a	X		X	X	X	X	X	X			
33.	Y. Swarupa																		X	X	X	a	X	X		X	X	X	a	X	X			
34.	Y. Ishwarya																		X	X	X	X	X	a		a	X	X	X	X	a			

Name Of The Office .....

Attendance Register

Month June

Year 2019

S. No.	NAME	Designation	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Remarks
35	Y. priyanka																		X	X	X	X	X		S	X	X	X	X	X		S		
36	K. Sampoorna																		X	X	X	X	X		U	a	a	X	X	X		U		
37	A. Suneetha																		X	a	X	X	X		N	X	X	X	X	a		N		
38	A. Sireesha																		X	X	X	a	X		D	X	X	X	X	X		D		
39	A. Jyothi																		X	X	X	X	X		A	a	X	X	a	a		A		
40	A. Pravalika																		X	a	a	X	X		Y	X	X	X	X	X		Y		
41	A. Spandana																		X	X	X	a	X			X	X	X	X	X				
42	Ch. Soniya																		a	X	X	a	X			a	a	X	X	X				
43	D. Anusha																		X	X	X	X	X			X	X	a	X	X				
44	G. Amulya																		X	a	X	X	X			X	X	X	X	X				
45	G. Anusha																		X	a	X	a	X			a	X	X	X	X				
46	K. Rasi																		X	X	X	X	X			X	X	X	X	X				
47	K. Bindu Priya																		X	X	a	X	X			a	X	X	X	X				
48	M. Supraja																		X	X	X	X	X			X	X	X	X	X				
49	N. Kavitha																		X	a	X	a	X			X	X	X	X	X				
50	N. Ramya																		a	X	X	X	X			X	X	a	X	X				
51	P. Krupavathi																		a	X	X	a	X			X	X	a	X	X				
52	P. Divya																		X	a	X	X	X			a	a	X	X	X				
53	P. Hanuma																		X	a	X	a	X			X	X	X	X	X				
54	S. Vennela																		X	X	X	X	X			X	X	X	X	X				
55	T. Maneesha																		a	X	X	X	X			X	X	X	X	X				
56	T. Mounika																		X	a	X	X	X			a	a	X	X	X				
57	T. Lakshmi Bhargavi																		X	X	X	X	X			X	X	a	X	X				
58	Y. Nikhitha																		X	a	X	X	X			a	a	X	X	X				
59	A. Indira kumari																		a	a	a	X	X			X	X	X	X	X				
60	D. Pramela																		a	X	X	X	X			X	X	X	X	a				
61	Sk. Anasi																		a	a	a	X	X			X	X	a	X	X				
62	Ch. Sridevi																		X	X	X	X	X			X	X	a	a	X				
63	Ch. Nitya sri																		X	a	X	X	X			a	X	X	X	X				
64	D. Vennela																		X	a	a	X	X			X	X	X	X	X				
65	D. Sandhya rani																		X	a	X	X	X			a	X	X	X	X				
66	G. Sravani																		X	X	X	a	a			a	X	X	X	X				
67	K. Dhana lakshmi																		X	X	X	X	X			X	X	a	a	a				
68	K. Athalya rani																		X	a	a	X	X			X	X	a	X	X				

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Name Of The Office

Attendance Register

Month June

Year 2019

S. No.	NAME	Designation	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Remarks
69	P. Roopa																		X	X	X	X	X		S	X	X	X	X	X	X	S		
70	P Subravathamma																		a	a	X	X	X		D	X	X	X	X	X	X	D		
71	P. Haritha																		X	X	X	a	a		N	a	X	X	a	X	X	N		
72	P. Sunitha																		X	X	X	X	X		P	X	a	a	a	X	X	P		
73	S. Meghana																		X	X	X	X	X		A	X	X	a	X	X	a	A		
74	T. Anusha.																		a	a	X	X	X		Y	X	a	X	a	X	X	Y		

SREE SRINIVASA & CO. VIJ-1

Name Of The Office .....

Attendance Register

Month July
Year 2019

S. No.	NAME	Designation	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Remarks
1	A. Usharani		X	X	a	X	X	X	S	X	X	a	X	X	X	S	S	X	X	X	X	X	a	S	X	X	a	X	X	X	S	X	X	X	
2	D. Supriya		X	X	X	a	X	X	U	X	a	X	X	a	X	X	E	U	X	X	X	X	X	U	X	a	X	X	X	X	U	a	X	X	
3	D. Sushma Bai		X	X	X	X	X	X	N	X	X	X	X	X	X	C	N	a	X	X	X	X	X	N	X	X	a	X	X	X	N	X	a	X	
4	D. Keteswari		X	X	X	X	a	X	D	a	X	X	X	X	X	O	D	a	X	X	X	X	X	D	X	a	X	X	X	X	D	X	X	X	
5	J. Sujatha		a	X	X	X	X	a	A	X	X	X	X	X	a	N	A	X	X	X	X	X	X	A	X	X	X	X	X	a	A	X	a	X	
6	K. Kalpana		X	X	X	X	a	X	Y	X	X	X	a	X	a	X	Y	X	X	a	X	a	X	Y	X	a	X	X	X	X	Y	X	X	X	
7	N. Pallavi		X	a	X	X	X	X		X	a	a	X	X	X			X	a	X	a	X	X		X	X	X	a	X	a		X	X	a	
8	P. Sonia		X	X	X	X	X	X		X	X	X	X	a	X	X	S	X	X	X	X	X	a		X	X	X	X	X	X		a	X	X	
9	S. Yemima		X	X	X	a	X	X		X	X	X	X	X	X	X	A	X	X	X	X	a	X		X	X	a	X	X	X		X	X	a	
10	T. Divya		X	X	X	X	X	a		X	X	a	X	X	X	X	T	X	X	X	a	X	X		X	X	X	X	a	X		X	X	X	
11	U. Pooja		X	X	X	X	a	X		X	X	X	X	a	X	X	U	X	X	X	X	X	X		X	X	X	X	X	X		X	a	X	
12	Y. Sandhya		X	X	X	a	X	X		X	X	X	X	X	X	X	R	X	X	a	X	X	X		X	X	X	X	a	X		X	X	X	
13	B. Manika		X	X	X	X	X	X		X	X	X	a	X	X	a	D	X	X	X	X	X	a		X	X	a	X	X	X		a	X	X	
14	B. Gautami		a	X	X	X	X	X		a	X	X	X	X	X	X	A	X	X	X	a	X	X		X	X	X	a	X	X		X	a	a	
15	CH. Vijayalakshmi		X	X	X	X	X	a		X	X	X	X	X	X	X	Y	X	X	X	X	X	a		X	X	a	X	X	X		X	a	X	
16	CH. Vanaja		X	X	a	X	X	X		X	X	a	X	X	X	X		X	X	X	X	X	X		a	X	X	X	X	X		X	a	X	
17	D. Sravanthi		X	a	X	X	X	X		a	X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	
18	D. Rose mary		X	X	X	X	X	X		X	a	X	X	X	X	X		X	a	X	X	X	X		X	X	X	X	a	X		X	X	X	
19	D. Bhargavi		X	X	X	X	X	X		X	X	X	a	X	X	X		X	X	X	X	X	X		X	X	a	X	X	X		X	X	X	
20	E. Esther Rani		X	X	X	X	a	X		X	X	X	X	X	X	X		X	X	a	X	X	X		X	X	X	X	X	X		X	X	X	
21	E. Divya		X	X	X	X	X	a		X	X	X	X	X	a	X		X	X	X	X	X	X		X	X	X	X	X	X		X	a	X	
22	J. Sandhya		a	X	X	X	X	X		X	X	X	X	X	X	X		a	X	X	X	X	X		X	X	X	X	X	X		X	X	X	
23	K. Lavanya		X	X	a	X	X	X		X	X	X	X	a	X	X		X	X	X	X	X	X		X	X	X	a	X	X		X	X	X	
24	M. Manika		X	a	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X	a		X	X	X	X	X	X		X	X	X	
25	M. Divya		X	X	X	X	X	a		X	X	X	a	X	X	X		X	X	X	X	X	X		a	X	X	X	X	X		X	X	X	
26	P. Nandini		X	X	X	X	a	X		X	X	a	X	X	X	X		X	X	X	X	X	X		X	X	X	X	a	X		X	X	X	
27	P. Vanitha		X	X	X	a	X	X		X	X	X	X	X	a	X		X	X	X	X	X	a		X	X	X	X	X	X		a	X	X	
28	P. Kavitha		X	X	X	X	X	X		a	X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	a	X		X	X	X	
29	S. Varshitha		X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X		a	X	X	X	X	X		X	X	X	
30	T. Chandana		X	X	X	X	X	X		X	a	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	
31	T. Manika		X	X	X	X	a	X		X	X	X	X	X	X	X		X	X	X	X	X	X		a	X	X	X	X	X		X	X	X	
32	V. Koti Rathnam		X	a	X	X	X	X		X	X	a	X	X	X	X		X	X	X	X	X	X		X	X	X	X	a	X		X	X	X	
33	Y. Swarupa		a	X	X	X	X	X		X	X	X	a	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	a	X	
34	Y. Ishwarya		X	X	X	X	X	a		X	X	X	X	a	X	X		X	a	X	X	X	X		X	X	X	X	X	X		X	X	X	

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S. No.	NAME	Designation	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Remarks
35	Y. Priyanka		x	x	x	x	x	x		x	x	x	x	x			x	x	x	x	a	x		x	x	x	x	x	x		x	x	x		
36	K. Sampoorna		a	x	x	x	x	x		x	x	x	x	x			x	x	x	x	x	x		x	x	x	x	x	x		x	x	x		
37	A. Sweetha		x	x	a	x	a	x		a	x	x	x	x			x	x	a	x	x	x		a	x	x	x	x	x		a	x	x		
38	A. Sneesha		x	x	a	a	a	a		x	a	x	x	x			x	x	x	x	x	x		x	x	x	x	x	x		x	x	x		
39	A. Jyothi		x	x	x	x	x	x		x	x	x	x	x			x	x	x	x	x	x		x	x	x	x	x	x		x	x	x		
40	A. Pavalika		a	a	a	x	x	x		x	x	x	a	x			x	x	x	x	x	x		x	x	x	x	x	x		a	x	x		
41	A. Spandana		x	x	a	a	x	x		x	x	x	x	x			x	x	x	x	x	x		x	x	x	x	x	x		x	x	a		
42	Ch. Sriya		x	x	a	a	x	x		x	x	x	x	x			x	x	x	x	x	x		x	x	x	x	x	x		x	x	x		
43	D. Anusha		x	x	x	a	a	a		x	a	x	x	x			x	x	x	x	x	x		a	x	x	x	x	x		x	x	x		
44	G. Anulya		x	x	x	x	x	x		x	a	a	x	x			x	x	x	x	x	x		x	x	x	x	x	x		a	x	x		
45	G. Anusha		x	x	x	x	x	x		x	x	x	x	x			x	x	x	x	x	x		x	x	x	x	x	a		a	x	x		
46	K. Roji		a	a	a	x	x	x		x	x	x	x	x			x	x	x	x	x	a		x	x	x	x	x	x		x	x	a		
47	K. Bindu Priya		a	a	x	x	a	x		x	x	x	x	x			x	x	x	x	x	x		x	x	x	x	x	x		x	x	a		
48	M. Supraja		x	x	a	x	x	x		a	a	a	x	x			x	x	x	x	x	x		x	x	x	x	x	x		x	a	x		
49	N. Kavitha		x	x	x	a	a	a		x	a	x	x	x			x	x	x	x	x	x		x	x	x	x	x	x		x	x	x		
50	N. Ramya		x	x	x	x	x	x		a	x	x	x	x			x	x	x	x	x	x		x	x	x	x	x	x		x	x	x		
51	P. Krupavathi		a	a	a	a	a	a		x	x	x	x	x			x	x	x	x	a	x		x	x	x	x	x	x		x	x	x		
52	P. Divya		x	x	x	x	x	x		x	x	x	x	x			x	x	x	x	x	x		x	x	x	x	x	x		x	x	x		
53	P. Hanuma		a	a	a	x	x	x		x	x	x	a	x			x	x	x	a	x	x		x	x	a	x	x	x		x	x	x		
54	S. Vennela		x	x	x	x	x	x		a	x	x	x	x			x	x	x	x	x	x		x	x	x	x	x	x		x	x	x		
55	T. Maheesha		a	x	x	x	x	x		x	a	x	x	x			x	x	x	x	x	x		x	x	x	x	x	x		a	x	x		
56	T. Manika		a	a	x	x	a	x		x	a	a	x	x			x	x	x	x	x	x		x	x	x	x	x	x		a	x	x		
57	T. Lakshmi Bhavani		x	x	x	x	a	a		x	x	x	x	x			x	x	x	x	x	x		x	x	x	x	x	x		x	x	a		
58	Y. Nikhitha		x	x	x	a	a	a		a	x	x	x	x			x	x	x	x	x	x		x	x	x	x	x	x		x	x	a		
59	A. Indira Kumari		x	x	a	a	x	x		a	x	x	x	x			x	x	x	x	x	x		x	x	a	x	x	x		x	x	a		
60	D. Pramila		x	x	x	a	a	a		x	a	a	a	x			x	x	x	x	x	x		a	x	x	x	x	a		x	x	x		
61	Sk. Anabi		x	x	x	a	a	a		x	x	x	x	x			x	x	x	x	x	x		x	x	a	x	x	x		a	x	x		
62	Ch. Sridevi		x	x	x	x	x	x		x	x	x	x	x			x	x	a	x	x	x		x	a	x	x	x	x		x	x	x		
63	Ch. Nitya Sri		x	x	x	x	x	x		a	a	a	x	x			x	x	x	x	x	x		a	x	x	x	x	x		a	x	x		
64	D. Vennela		a	a	a	x	x	x		x	a	x	x	x			x	x	x	x	x	x		x	x	x	x	x	x		x	x	x		
65	D. Sandhyarani		x	x	x	a	a	a		x	a	x	x	x			x	x	x	x	x	x		x	x	x	x	x	x		x	x	a		
66	G. Sravani		x	x	x	x	x	x		x	a	a	x	x			x	x	x	x	x	x		x	x	a	x	x	a		a	x	x		
67	K. Dhana Lakshmi		a	a	a	x	x	x		x	x	x	x	x			x	x	x	x	x	x		x	x	x	x	x	x		x	a	x		
68	K. Ahalya Rani		a	x	x	x	x	x		x	x	x	x	x			x	x	x	x	a	x		x	x	x	x	x	x		x	x	x		

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S. No.	NAME	Designation	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Remarks
1	P. [illegible]		X	X	X	X	A	X					X	A			X	X	X	X	X	X		X	X	X	X	X			X	X	X	
2	P. Subramanyam		X	A	X	X	X	X					X	X			X	X	X	X	X	X		X	A	X	X	X			X	X	X	
3	P. [illegible]		A	X	X	X	X	X					X	X			X	X	X	X	X	X		A	X	X	X	X			X	X	X	
4	P. [illegible]		X	X	X	X	X	X					X	X			X	X	X	X	X	X		X	X	X	X	X			X	X	X	
5	S. [illegible]		X	X	X	X	X	X					X	X			X	X	X	X	X	X		X	X	X	X	X			X	X	X	
6	T. [illegible]		X	X	X	X	X	X					A	X			X	X	A	X	X	X		X	X	X	A	X			X	X	X	

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1	A. Usha Rani		X	X	X	S	X	X	O	X	X	S	S	B	X	X	I	X	X	S	L	X	X	X	X	X	S	X	X	X	X	X	X	
2	D. Supriya		X	X	X	U	X	X	X	X	X	E	U	A	X	X	N	X	X	U	X	X	X	X	X	X	D	X	X	X	X	X	X	
3	D. Sushma Bai		X	X	X	N	X	X	X	X	X	C	N	K	O	X	D	O	X	N	X	X	O	X	X	X	N	X	X	X	X	X	X	
4	D. Koteswari		X	X	X	D	X	O	X	X	X	O	D	R	X	X	E	X	X	D	G	X	X	X	X	X	D	X	X	X	X	X	X	
5	J. Sujatha		X	X	X	A	X	X	X	X	X	N	A	I	X	X	P	X	X	A	X	X	X	X	X	X	A	X	X	X	X	X	X	
6	K. Kalpana		X	X	X	Y	X	X	X	X	X	D	Y	D	X	X	E	X	X	Y	X	X	X	X	X	X	Y	X	X	X	X	X	X	
7	M. Pallavi		X	X	X		X	X	X	X	O				X	X	A	X	X		X	X	X	X	X	X		X	X	X	X	X	X	
8	P. Sonia		O	X	X		X	X	X	X	X	S			X	X	D	X	X		X	X	X	X	X	X		X	X	X	X	X	X	
9	S. Yemima		X	X	X		X	X	X	X	X	A			X	X	E	X	X		X	X	X	X	X	X		X	X	O	X	X	X	
10	T. Divya		X	X	X		X	X	X	X	X	T			X	X	N	X	X		X	X	O	X	X	O		X	X	O	X	X	X	
11	U. Pooja		X	X	X		X	X	X	X	X	U			X	X	C	X	X		X	X	X	X	X	X		X	X	X	X	X	X	
12	Y. Sandhya		X	X	X		X	X	X	X	X	R			X	X	G	X	X		X	X	X	X	X	X		X	X	O	X	O	X	
13	B. Mounika		O	X	X		X	X	X	X	X	D			X	X		X	X		X	X	X	X	X	X		X	X	X	X	X	X	
14	B. Gowthami		X	X	X		X	X	X	X	X	A			X	X	D	X	X		X	X	X	X	X	X		X	X	X	X	X	X	
15	Ch. Vijayalakshmi		X	X	X		X	X	O	X	X	Y			X	X	A	X	X		X	X	X	X	X	X		X	X	X	O	O	X	
16	Ch. Vanja		X	X	X		X	X	X	X	X				X	X	Y	X	X		X	X	X	X	X	X		X	X	X	X	X	X	
17	D. Sravanthi		X	X	X		X	X	X	X	X				X	X		X	X		X	X	X	X	X	X		X	X	X	X	X	X	
18	D. Rosemary		X	X	X		X	X	X	X	X				X	X		O	X		X	X	X	X	X	X		X	X	X	X	X	X	
19	D. Bhargavi		X	X	X		X	X	X	X	X				X	X		X	X		X	X	X	X	X	X		X	X	X	X	X	X	
20	E. Esther Rani		X	X	X		X	X	X	X	X				X	X		X	X		X	X	X	X	X	X		X	X	X	X	X	X	
21	E. Divya		X	X	X		X	X	X	X	X				X	X		X	X		X	X	X	X	X	X		X	X	X	X	X	X	
22	J. Sandhya		X	X	X		X	X	X	X	X				X	X		X	X		X	X	X	X	X	X		X	X	X	X	X	X	
23	K. Lavanya		X	X	X		X	X	X	X	X				X	X		X	X		X	X	X	X	X	O		X	X	X	X	X	X	
24	M. Mounika		X	X	X		X	X	X	X	X				X	X		X	X		X	X	X	X	X	X		X	X	X	X	X	O	
25	M. Divya		X	X	X		X	X	X	X	X				X	X		X	X		X	X	X	X	X	X		X	X	X	X	X	X	
26	P. Nandini		X	X	X		X	X	X	X	X				X	X		X	X		X	X	X	X	X	X		X	X	X	X	X	X	
27	P. Vanitha		X	X	X		X	X	X	X	X				O	X		X	X		X	X	X	X	X	O		X	X	X	X	X	X	
28	P. Kavitha		X	X	O		X	X	X	X	X				X	X		X	X		X	X	O	X	X	X		X	X	X	X	X	X	
29	S. Varshitha		X	X	X		X	X	X	X	X				X	X		X	O		X	X	X	X	X	X		O	X	X	X	X	X	
30	T. Chandana		X	X	X		X	X	X	X	X				X	X		X	X		X	X	X	X	X	X		X	X	X	X	X	O	
31	T. Mounika		X	X	X		X	X	X	X	X				X	X		X	X		X	X	X	X	X	X		X	X	X	X	X	X	
32	V. Koti Rathnam		X	X	X		X	X	X	X	X				X	X		X	X		X	X	X	X	X	X		X	X	X	X	X	X	
33	Y. Swarupa		X	X	X		X	X	X	X	X				X	X		X	X		X	X	O	X	X	X		X	X	X	X	X	X	
34	Y. Ishwarya		X	O	X		X	X	X	X	X				X	O		X	X		X	X	X	X	X	X		X	X	X	X	O		

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35	Y. Priyanka		X	X	X	-	X	X	a	X	X				X	X	X	X			X	X	X	X	X	X	X		X	X	X	X	X	
36	K. Sampoorna		X	X	X		X	X	X	X	X				X	X	X	X			X	X	X	X	X	X			X	X	a	X	X	
37	A. Suneetha		a	X	X		X	X	X	X	X				a	X	X	X			X	X	X	X	X	X	X		X	X	X	X	X	
38	A. Sireesha		X	X	X		X	X	X	X	X				X	X	X	X			X	X	X	X	X	X	X		X	X	X	X	X	
39	A. Jyethi		X	X	X		X	X	X	X	X				X	X	X	X			X	X	X	X	X	X	X		X	X	X	a	X	
40	A. Pravalika		X	X	X		X	X	X	X	X				X	X	X	X			X	X	X	X	X	X	X		X	X	X	X	X	
41	A. Spandana		X	X	X		X	X	X	X	a				X	X	X	X			X	X	X	X	X	X	X		X	X	X	X	X	
42	Ch. Soniya		X	X	X		X	X	X	X	X				X	X	X	X			X	X	X	X	X	X	X		X	a	X	X	X	
43	D. Anusha		X	X	X		a	X	X	X	X				a	X	X	X			X	X	X	X	X	X	X		X	X	X	X	X	
44	G. Anudya		X	X	X		X	X	X	X	X				X	X	X	X			X	X	X	X	X	X	X		X	X	X	X	X	
45	G. Anusha		X	X	X		X	X	X	X	X				X	X	X	X			X	X	X	X	X	X	X		X	X	X	a	X	
46	K. Rasi		X	X	a		X	X	X	X	X				X	X	X	X			X	X	X	X	X	X	X		X	X	X	X	X	
47	K. Rendu Priya		X	X	X		X	X	X	X	X				X	X	X	X			X	X	X	X	X	X	X		X	X	X	X	X	
48	M. Supraja		X	X	X		X	X	X	X	X				a	X	X	X			a	X	X	X	X	X	X		X	X	X	X	X	
49	N. Kavitha		X	X	X		X	X	X	X	X				X	X	X	X			X	X	X	X	X	X	X		X	X	X	X	X	
50	N. Ramya		X	X	X		X	X	X	X	X				X	X	X	X			X	X	X	X	X	X	X		X	X	X	X	X	
51	P. Krupavathi		X	X	X		X	X	X	X	X				X	X	X	X			X	X	X	X	X	X	X		X	X	X	X	X	
52	P. Divya		X	X	X		X	X	X	X	X				X	X	X	X			X	X	a	X	a	X	X		a	X	X	X	X	
53	P. Hanuma		X	a	X		X	X	X	X	X				X	X	X	X			X	X	X	X	X	X	X		X	X	X	X	X	
54	S. Vennela		X	X	X		X	X	X	X	X				X	X	X	X			X	X	X	X	X	X	X		a	X	X	X	X	
55	T. Maneesha		X	X	X		X	X	X	X	X				X	X	X	X			X	X	X	X	X	X	X		a	X	X	X	X	
56	T. Mounika		X	X	X		X	X	X	X	X				X	X	X	X			X	X	X	X	X	X	X		X	X	X	X	X	
57	T. Lakshmi Bhargavi		X	X	X		X	X	X	X	X				X	X	X	X			X	X	X	X	X	X	X		a	X	X	X	X	
58	Y. Nikhitha		X	X	X		X	X	X	X	X				X	X	a	X			X	X	X	X	X	X	X		X	X	X	X	X	
59	A. Indira Kumari		X	X	X		X	X	X	X	X				X	X	X	X			X	X	X	X	X	X	X		X	X	X	X	X	
60	D. Praveela		X	X	X		X	X	X	X	X				X	X	X	X			X	X	X	X	X	X	a		X	X	a	X	X	
61	SK. Anabi		X	X	X		X	a	X	X	X				X	X	X	X			X	X	X	X	X	X	X		X	X	X	X	X	
62	Ch. Sridevi		X	X	X		X	X	X	X	X				X	X	X	X			X	X	X	X	X	X	X		X	X	X	X	X	
63	Ch. Nitya Sri		X	X	X		X	X	X	X	X				X	X	X	X			X	X	X	X	X	X	X		X	X	X	X	X	
64	D. Vennela		X	X	X		X	X	X	X	X				X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	
65	D. Sandhya Rani		X	X	X		X	X	X	X	X				X	X	X	X			X	X	X	X	a	X	X	X	X	X	X	X	X	
66	G. Sravani		X	X	X		X	X	X	X	a				X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	a	X	
67	K. Dhana lakshmi		X	X	X		X	X	X	X	X				X	X	X	X			X	X	a	X	X	X	X	X	X	X	X	X	X	
68	K. Attagiya Rani		X	a	X		X	a	X	X	X				X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	

SREE SRINIVASA & CO. VIJ-1

Name Of The Office

Attendance Register

Month Aug'14

Year 2019

S. No.	NAME	Designation	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Remarks
69	P. Roopa		X	X	a		X	X	a	X	X				X	X		X	X		X	X	X	a	X	X		X	XX	X	X	X		
70	P. Subravathamma		X	X	X		X	X	X	X	X				X	X		X	X		X	X	X	X	X	X		X	X	X	X	X	X	
71	P. Haritha		X	X	X		X	X	X	X	X				a	X		X	X		a	X	X	X	X	X		X	X	X	X	X	X	
72	P. Sunetha		X	X	X		X	X	X	X	X				X	X		X	X		X	X	X	X	X	X		X	a	X	X	X	X	
73	S. meghana		a	X	X		X	X	X	X	X				X	X		X	X		X	X	X	X	X	X		X	X	X	X	X	X	
74	T. Anusha.		X	X	X		X	X	X	X	X				X	X		X	X		X	X	X	X	X	X		X	X	X	a	a	X	

SREE SRINIVASA & CO. VIJ-1

Name Of The Office

Attendance Register

Year

S. No.	NAME	Designation
1	A. Wilkathwi	
2	D. Jeffrey	
3	D. Joshua Evi	
4	D. Kelvin	
5	J. Jonathan	
6	K. Kelvin	
7	M. Fullers	
8	M. Smith	
9	S. Wilfred	
10	T. Diego	
11	C. Pete	
12	W. Sandage	
13	G. Mando	
14	K. Gaitwani	
15	Ch. Wayalatchi	
16	Ch. Dingo	
17	D. Dalantai	
18	G. Kenny	
19	G. Dontjai	
20	E. Echantai	
21	E. Diego	
22	J. Sandage	
23	K. Kenny	
24	M. Mawiki	
25	M. Diego	
26	P. Mandwi	
27	P. Vantika	
28	P. Kantika	
29	S. Vanshika	
30	T. Chandana	
31	T. Mawika	
32	V. Kati Pakwan	
33	Y. Sandage	
34	Y. Ishwaya	

SREE SRINI

Name Of The Office

Attendance Register

Month September
Year 2019

S. No.	NAME	Desig-nation	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Remarks
35	Y. Priyanka				x	x	x	x	x		x		x	x	x			x	x	a	x	x	x		x	x	x	x	x	a				
36	K. Sampoorna				x	x	x	x	x		x		a	x	x			x	x	x	x	x	x		x	a	x	x	x	x				
37	A. Suneetha				x	x	x	x	x		a		x	x	a			x	x	x	x	x	x		x	x	a	x	x	x				
38	A. Sireesha				x	x	x	x	x		x		x	x	x			x	x	x	a	x	x		x	x	x	x	x	x				
39	A. Jyothi				x	x	x	x	x		x		x	x	x			x	x	x	x	x	x		x	x	x	x	a	x				
40	A. Pravalika				x	x	x	x	x		x		x	x	x			x	a	x	x	x	x		x	a	x	x	x	x				
41	A. Spandana				x	x	x	x	x		a		x	a	x			x	x	x	x	x	x		x	x	x	x	x	a				
42	Ch. Sriya				x	x	x	x	x		x		x	x	x			x	x	x	a	x	x		x	x	x	a	x	x				
43	D. Anusha				x	x	x	x	x		x		x	x	x			x	x	x	x	x	x		x	a	x	x	x	x				
44	G. Anulya				x	x	x	x	x		x		x	x	x			x	x	x	a	x	x		x	x	x	x	x	x				
45	G. Anusha				x	x	x	x	x		x		x	x	x			x	a	x	x	x	x		x	x	x	a	x	x				
46	K. Rasi				x	x	x	x	x		x		x	x	x			x	x	x	a	x	x		x	x	x	x	x	x				
47	K. Rondupriya				x	x	x	x	x		x		x	x	x			x	x	x	x	x	x		a	x	x	x	x	x				
48	M. Supriya				x	x	x	x	x		x		x	x	a			x	x	x	x	a	x		x	x	x	x	x	a				
49	N. Kavitha				x	x	x	x	x		a		x	x	x			x	a	x	x	x	x		x	xa	x	x	x					
50	N. Ramya				x	x	x	x	x		x		x	x	x			x	x	x	x	x	x		x	x	x	x	x	x				
51	P. Krupavathi				x	x	x	x	x		x		a	x	a			x	x	x	x	x	x		x	x	x	x	x	a				
52	P. Divya				x	x	x	x	x		a		x	x	x			x	x	x	a	x	x		x	x	x	x	x	x				
53	P. Hanuma				x	x	x	x	x		x		x	x	a			x	x	x	x	x	x		x	x	ax	x	x	a				
54	S. Vennela				x	x	x	x	x		x		x	x	x			x	x	x	x	a	x		x	x	a	x	x	x				
55	T. Moneesha				x	x	x	x	x		x		x	x	x			x	a	x	x	x	x		a	x	x	x	x	x				
56	T. Mounika				x	x	x	x	x		x		x	x	x			x	x	x	x	x	x		x	x	x	a	x	x				
57	T. Lakshmi bhargavi				x	x	x	x	x		x		x	x	x			x	x	x	x	x	x		x	a	x	x	a	x				
58	Y. Nikhitha				a	x	a	x	x		a		x	x	x			x	x	x	x	a	x		x	a	x	x	x	x				
59	A. Indira kumari				x	x	x	x	x		x		a	x	x			x	a	x	x	x	x		x	x	x	a	x	a				
60	D. Prameela				x	a	x	x	x		x		x	x	x			x	x	x	x	x	x		a	x	x	x	x	x				
61	Sk. Anabi				x	x	x	x	x		x		x	x	a			x	x	x	a	x	x		x	a	x	x	x	a				
62	Ch. Sridevi				x	x	a	x	x		x		x	x	x			x	x	x	x	x	x		x	x	x	x	x	x				
63	Ch. Nitya sri				a	x	x	a	x		x		x	x	x			x	x	x	x	a	x		x	x	a	x	x	x				
64	D. Vennela				x	x	x	x	x		x		x	x	x			x	x	x	x	x	x		x	x	x	a	x	x				
65	D. Sandhya rani				x	x	x	x	x		a		x	x	x			x	a	x	x	x	x		x	x	x	x	x	x				
66	G. Sravani				x	x	x	x	x		x		a	x	x			x	x	x	a	x	x		x	x	x	x	a	x				
67	K. Dhanalakshmi				x	x	x	x	x		x		x	x	a			x	a	x	x	x	x		x	x	a	x	x	x				
68	K. Abhaya Rani				x	x	x	x	x		x		x	x	x			x	x	x	x	a	x		x	x	x	x	x	x				

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Attendance Register

Month September
Year 2019

S. No.	NAME	Designation	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Remarks
69	P. Roopa				x	x	x	x	x		x		x	a	x			x	x	x	x	x	x		x	x	x	x	x	x				
70	P. Subravathamma				x	x	x	a	x		a		x	x	x			x	x	x	x	x	x		a	x	x	a	x	x				
71	P. Haritha				x	x	x	x	x		x		x	x	a			x	x	x	x	x	a		x	x	x	x	x	a				
72	P. Sunitha				x	a	x	x	x		x		x	x	x			a	x	x	x	x	x		x	x	a	x	x	x				
73	S. Meghana				x	x	x	x	x		a		a	x	x			x	x	a	x	x	x		a	x	x	x	x	x				
74	T. Anusha				a	x	x	x	x		x		x	a	x			x	a	x	x	x	a		x	x	x	a	x	x				

SREE SRINIVASA & CO. VU-1

JKC

JAWAHAR KNOWLEDGE CENTRE (JKC)

Communication Skills and Soft Skills

- Student's Book

Commissionerate of Collegiate Education
Government of Andhra Pradesh
BRKR Bhavan,Hyderabad.

JAWAHAR KNOWLEDGE CENTRE (JKC)

Communication Skills and Soft Skills

- Student's Book

Commissionerate of Collegiate Education
Government of Andhra Pradesh
BRKR Bhavan, Hyderabad.

JKC Monitoring Cell
Jawahar Knowledge Centre
Commissionerate of Collegiate Education
Govt. of A.P., Hyderabad.
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Communication Skills and Soft Skills
-Student's Book

January, 2015

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Message

I am happy to note that the Commissionerate of College Education has brought out four books for the aid of JKC Students and teachers. I hope that the material will help the students in acquiring additional skills which are essential for their employment and future career.

Jawahar Knowledge Centers (JKCs) have been doing a good service to the students in bringing out their innate skills, particularly among rural poor and other disadvantaged sections.

I appreciate the efforts of the officials for strengthening the Jawahar Knowledge Centers there by paving way for bright future of the youth of newly formed Andhra Pradesh State.

I wish the students of JKCs a present success in their endeavor.

(Ganta Srinivasa Rao)

Acknowledgements

Creative and productive work is possible through effort of dedicated people. The students' study material and teacher manual is brought out to effectively support and strengthen student learning in JKC programmes across the state. It is the product of hard work and commitment of several academicians. We gratefully acknowledge all their efforts.

The Department of Collegiate Education gratefully acknowledges the encouragement and guidance of its Commissioner Smt. K. Sunitha IAS. This study material would never have taken shape without commissioner's unflinching support and continuous supervision.

The Department is thankful to the team of teachers namely Dr. K.V. Ramana Rao (Convener), Sri.Srisaila Sastry, Dr.I.Vijaya Babu , Sri.A.V Ramana Rao, Dr.A.Madhavi Latha, Dr.D.Uma Rani, Dr.M.Sarat Babu (Rtd. Reader in English) for their contribution in preparing study material and teacher manual in *Communication Skills & Soft Skills.*

The Department extends heartfelt thanks to Prof. Paul Gunashekar, *Dean, Department of English Language Education, EFL University*, Hyderabad for his valuable suggestions in the preparation of students' book and teacher manual in *Communication skills & Soft Skills*.

The Department is thankful to Dr.V.Srinivas Rao, Dr. B.V.Tirupanyam, Dr.Y.Purushotham Reddy, Smt Padmaja, Smt.K.Uma Devi for their hard work in preparing study material in *Analytical Skills* and Sri G.D.Rajender, Smt.Kavitha for their dedication in preparing study material in *Computer Skills*.

Finally the department acknowledges Dr. R. David Kumar, Academic Guidance Officer, Dr.G. Srinivas, Chief Coordinator-JKC and Smt. A. Vimala Rodhe, Academic Officer, without whose relentless coordination the preparation of this JKC students study material would not have been possible.

Department of Collegiate Education

Foreword

The Department of Collegiate Education strives in making higher education accessible to all sectors of people and promotes women education at Under Graduate and Post Graduate levels. The advent of liberalization in economy and the big boom in IT sector have opened the door of opportunity in global job market to those who have good communication skills, computer skills, and industry related skills, apart from strong domain knowledge in the core subjects. The conventional curriculum offered in the form of B.A., B.Com and B.Sc., courses does not impart requisite skills relevant to the dynamic job market especially that of industries like IT and ITES. The Department felt the urgency of imparting skill-based training to students so as to bridge the skill deficit of students and enable them seize the employment opportunities available in the job market.

The Government of Andhra Pradesh established Jawahar Knowledge Centres (JKCs) - the modern finishing school in Government Degree Colleges across the state of Andhra Pradesh to impart training in employability skills with a special curriculum. These centers aim at providing training in employability skills and placement assistance to those students studying conventional courses in Degree Colleges of Andhra Pradesh.

The unique feature of JKC is its training programme which is designed to help students develop confidence, communicative competency and grow as professionals. The curriculum includes communication skills, soft skills, analytical skills, technical skills, ethical values and general awareness. Each JKC conducts training in three batches per year with duration of three months each. The 250 hour training imparted by the trained Mentors helps in mentoring the graduate students as Employable graduates.

As the JKC acts as a finishing school, every JKC student comes out as a polished product with improved dynamism and confidence levels. It is no exaggeration to say that the JKCs are successful in enabling the rural students compete with their urban counterparts by bridging the urban-rural divide. In addition to the regular training in employability skills, JKC also provides placement assistance by conducting on-campus recruitment drives.

JKC Monitoring Cell (JKCMC) at the Commissionerate of Collegiate Education, AP, Hyderabad focuses on overall coordination by organizing workshops and training programmes. It acts as an interface between industry and academia and plays a vital role in enforcing the effective functioning of the project.

The department approached Centre for Innovations in Public Systems (CIPS), Hyderabad (An Autonomous Organization Funded by Government of India) to evaluate JKCs in terms of the achievements in the stated objectives and to suggest suitable recommendations for strengthening the programme. The CIPS, in its evaluation report, appreciated the initiative and the results thereon, and made a few recommendations. One of the recommendations of the CIPS was that Study material could be made available to the JKC students in the form of printed books.

The Commissionerate of Collegiate Education in its efforts to implement CIPS recommendations has taken up the task of preparing study material (Communication Skills, Soft Skills, Analytical Skills and Computer Skills) for the students and a manual for teachers by inviting well-experienced teachers in the concerned areas.

I wish to express my gratitude to the Government of Andhra Pradesh for their unstinted support to the department in effectively running the JKCs.

I hope that this attempt will enhance students' enthusiasm and sustain their interest in the course leading to qualitative outcome. I also hope that this endeavor will strengthen our resolve to take up many more such initiatives in future in serving the student community.

K. Sunitha, IAS
Commissioner of Collegiate Education
Government of Andhra Pradesh
Hyderabad

Introduction

'Communication Skills' and 'Soft Skills' have become buzz words these days. Together, they constitute the major components of Personality Development, an indispensable qualification to every job seeker. Despite a whole lot of books on these titles, none of them completely answers the specific needs of an average rural undergraduate student seeking employment in the global market. There has been a long felt need to design material for the students of Jawahar Knowledge Centres to meet needs of Communication Skills and Soft Skills. Bearing this in mind the Commissionerate of Collegiate Education, AP took up the herculean task of bringing out an exhaustive and independent volume containing grammar and communication skills meeting the demands of the current employment scenario. The book is the result of the best knowledge and expertise of experienced teachers across the state. It focuses on the fundamental aspects of grammar and Soft Skills.

The book targets average undergraduate learners. Meticulous care has been taken to make the content reader friendly. The language is simple and conversational in tone. The book is designed to facilitate self learning even for those who have no access to a qualified teacher. Contents have been carefully graded and arranged chapter wise and level wise from easy to difficult ones. Care has also been taken to devise exercises in such a way that they ensure students a firm foundation and a smooth progression of learning from thereon. One important feature of this book is its ability to meet communicative needs. Examples and exercises in this book have been carefully contextualized in day to day experiences. This feature to a large extent will enable the learners to use this material as an aid for improving speaking skills too. Exhaustive lists of synonyms, antonyms and one word substitutes have also been included for the benefit of students appearing for competitive examinations.

Soft Skills are inter-personal and intra-personal skills that help a person maintain better interaction and relationship with others. Though it is not possible to discuss all soft skills in detail in a book like this, a few major topics from body language to negotiation skills are included here for the benefit of students. The students are advised to translate their knowledge of soft skills into practice so that they can become rounded individuals.

Wherever necessary, material has been borrowed from various open educational sites to provide best examples and illustrations. The authors thankfully acknowledge the same and express their gratitude to all such sites. This reading material is not meant for commercial use. It will be used only by the students of Jawahar Knowledge Centers in Andhra Pradesh, exclusively for educational purpose. This book is the first humble attempt to provide useful learning material to the JKC students. As such, it is by no means comprehensive. All suggestions from teachers will be thankfully received and used for future improvements. We wish the students a fruitful learning experience.

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COMMUNICATION SKILLS

GRAMMAR

1. Self-Introduction

Self introduction means introducing oneself. You often meet new students in the classroom or strangers when travelling by bus or train. You need to give them your introduction. More essential than these, at the job scenario you will have to introduce yourself to the interview panel. In all these cases and many more, we should offer a brief introduction about ourselves. All self introductions are not stereotyped. The occasion determines the content of the introduction. As such, the inputs change from situation to situation. The way you introduce yourself to your neighbor is not the way you introduce yourself to a member of the interview panel. So it becomes very important for you to plan your self introduction much before you encounter these situations.

Pre-activity:

Work in Pairs and rearrange the scrambled words to form meaningful sentences:

1. to buy /went / vegetables/ Rajesh/ to market
2. Independence Day /announced/ special awards/ The Chief Minister/ on the
3. the students /JKC/ in /and life skills/ trains/ job related skills
4. attends /Kumar/ regularly /college
5. Mother Earth /avoid /to preserve /should /using /plastic /We
6. health / is /to /Smoking / injurious
7. favourite /Sachin /cricketer/ is /my
8. is a to /of life/ Global Warming/ very serious/ threat/ our way
9. are you / When/to get / going /the medical reports?

Activity 1:

Read the following passage on introduction about oneself:

We meet different people in our day to day life. We meet friends, relatives and even strangers. When we meet someone for the first time we need to introduce ourselves. Our introduction should be brief and effective. We should not trouble others with unnecessary information and at the same time we should not skip the important aspects about us. When you introduce you should draw the attention of your listeners by greeting them in a well pitched voice. You should state the purpose of your speech

and make it personal. While concluding you may add an aspect of your life. Tell your audience what makes you who you are and what you are. It can be one of your strengths or even a hobby.

Work in pairs, discuss the above paragraph, and answer the following questions

1. Why is self-introduction necessary?

   _____

   _____

2. How should our self – introduction be?

   _____

   _____

3. Why is 'greeting' important?

   _____

   _____

4. How can you draw the attention of listeners?

   _____

   _____

5. What is the important feature of self-introduction?

   _____

   _____

Activity-2:

Form pairs and complete the following table using appropriate expressions for introduction:

About Myself	About my Friend
Hi,	Hi,
I am ……..	This is my friend ……..
I am from……..	She/he is from……..
I am studying ……..	She/he is studying ……..
I want to become……	He / She wants to become……
I like……	He / She likes ……
I do not like……..	He / She does not like……
My strength/s is/are ……	His /Her strength/s is/are ……
My weakness is……..	His /Her weakness is……..

I am good	He / She is good at……

Activity-3:

Form into pairs and interview each other using the following questions and note the information on a piece of paper

(What is your name? Where are you from? What are you studying? What is your aim? What do you like? What are your strengths? What is your weakness? What are you good at? What makes you different from others?)

Activity-4:

Look at the questions designed specially to help you create your self -introduction and pick out answers from your personal life to share them with your friends. Try to answer the following questions.

- Who are you?
- Where are you from? What is your education?
- What is your main personal goal?
- What do you like very much?
- What do you hate or dislike?
- Have you developed any special skill?
- What activity has played or plays an important part in your life?
- What is your hobby or interest in your spare time?
- What are your strengths and weaknesses?
- How are you different in attitude?

(Start your introduction like this: Good morning. I am …)

Use introductory greetings when you are introducing yourself or others:

Hello! , Good morning/ afternoon/ evening/……, Ladies and gentlemen……, Dear friends……, Dear brothers and sisters……

2. 'Be', 'Do' and 'Have' Forms

The forms of 'Be', 'Do' and 'Have' are essential aspects of auxiliary verbs or what are otherwise known as 'Helping Verbs.' In fact, the 'be', 'do' and 'have' forms are the most frequently used forms of verbs. They help in the formation of negatives and questions. They function like main verbs also. As auxiliary verbs be forms occur before-ing forms and past participle forms and do forms before the infinitive form of the verb.

Pre- activity:

***Ravi* attended an interview at Hyderabad and the interviewer asked the following questions:**

- What is your name?
- What are your hobbies?
- What is your father?
- Are you a workaholic?
- Were you brought up in a village?
- Did you study in a Telugu medium school?
- Do you have a professional qualification?
- Have you read Tagore's Gitanjali

We can also frame questions using be and do forms:

Let's Recall:

❖ 'be' and 'do' are also verbs.

❖ They have *different forms* in the same tense:

❖ Look at the use of 'be' and 'do' forms with different persons in Present and past tenses.

Verb	Present tense (V1)	Past tense (V2)	Past Participle (V3)
Be	Is/am/are E.g.: I + **am** We/you/they + **are** He/she/it + **is**	Was/were Eg: I/he/she/it + **was** We/you/they + **were**	Been
Do	Do/does E.g.: I/we/you/they + **do** He/she/it + **does**	Did E.g.: Subject (any person) + **did**	Done
Have	Have/ has E.g I/We/ you/they+have He/she/it+has	Had e.g subject (Any Person) + had	Had

'Be' and 'Do' forms are used to make

1. *'Yes/No' type Questions* (confirmation)
2. *'Wh' type Questions* (information)

Use of 'be' forms:

1. As **main verb** it denotes the state of the subject:

   E.g. Are you in 1st degree now? (present state)
   Was your sister in Intermediate last year? (Past state)

2. As **helping verb**

   (a) It forms the continuous tense with 'ing' form.
   E.g. What are you doing there?

   (b) It forms the passive voice with V3 form.
   E.g. How was the window broken?

Use of 'do' forms:

1. As helping verb 'do' takes an infinitive [V1] to form questions and negatives:

   E.g. Do you wake up early? (Generally/every day)

   When do you get up?

   Does he speak English? (Generally)

   How does he speak English?

   Did you attend the classes yesterday? (Past)

   When did you return home?

Use of 'have' forms

1. As ahelping verb, 'have' is used with V_3 in perfect tenses

Eg. I have completed home work

I had completed my work before 5 pm yesterday.

2. As main verb it tells about possession

Eg. Madhari has a car

I had a moped till I bought a car

Activity-I (Pair Work)

Work in Pairs and frame Yes/No questions using the following hints?

1. I / late?

   Eg: Am I Late?

   Yes, you're.

   No, you're not.

   _____

2. he / tired?

   _____

3. He / know French?

   _____

4. She / a teacher?

   _____

5. Raju / from Nellore?

   _____

6. I / early?

   _____

7. You / thirsty?

   _____

8. She / on the bus?

   _____

9. you/college/yesterday?

   _____

10. Lalitha/ sing well?

    _____

Activity -2 *(Individual Work)* *(Reading – Writing - Speaking)*

Fill in the blanks with appropriate 'be' forms

1. Where _____ you going now?
2. I ____ not watching TV yesterday.
3. Why _____ you so busy today?
4. Where _____ my lap top?
5. Where _____ you last night?

Activity -3 *(Individual Work)* *(Reading – Writing - Speaking)*

Fill in the blanks with appropriate 'do' forms:

1. _____ you eat non vegetarian food?
2. Where _____ you go yesterday?
3. What _____ your father say about me?
4. _____ Sita meet the Principal last Saturday?
5. _____ money matter?

Activity -4 *(Pair Work)* *(Reading – Writing - Speaking)*

Frame questions with 'be'/ 'do' forms to get the following answers:

1. We live in Hyderabad.
2. They went home early.
3. Raghu is leaving for the states.
4. The boys were playing tennis.
5. They are walking slowly.

Activity -5 *(Pair Work)* *(Reading – Writing - Speaking)*

Work in pairs and complete the following dialogue using 'be' or 'do' forms:

A: Hello! How are you?

B: _____.

A: Are you busy with any work right now?

B: Yes, _____. What do you want?

A: Nothing in particular. _____ your father at home?

B. No, he isn't. He has gone out just now.

A: Ok. When _____for Chennai?

B: I am leaving for Chennai next Tuesday.

A: _____visit Chennai earlier.

B: No, I _____. That's why this visit.

3. Modal Auxiliaries-I

Modal verbs are also called **modal auxiliary verbs**, **modal auxiliaries**, or simply **modals**. These verbs are a subcategory of auxiliary verbs, which means they cannot be used without a main verb. English has several modal verbs. Modals are special verbs which behave very irregularly in English **Helping verbs** or **auxiliary verbs** such as *will, shall, may, might, can, could, must, ought to, should, would, used to, need* are used in conjunction with **main verbs** to express shades of time and mood. While the meaning and usage of modal verbs is complicated, the grammar is simple. Modal verbs are not conjugated. All modal verbs must be followed by a main verb in the base form except for **ought** which is followed by an infinitive.

Pre activity:

Recall:

Can	**will**	**Must**	**Dare**
Could	**would**	**ought to**	**used to**
May	**shall**	**have to**	
Might	**should**	**Need**	

The verbs listed in the box above are called **Modal Auxiliaries**. Together with the main verbs that follow, they express the mode or manner of actions denoted by the verbs. In other words, they express such ideas as ***ability, probability, possibility, permission, obligation, duty or advisability*** etc.

- These modal auxiliaries do not change according to the number or person of the subject.
- They do not stand alone.
- They are always followed by a main verb.
- After these modals the **base form of the verb** (V_1) should be used.

E.g.: You/ He/ They **may go** and **play**.
I / You / He/ They **can drive**.
He/ You **should** see a doctor.

can/could:

CAN is used to express *ability, request* and *possibility*

E.g. My friend *can speak* fourteen languages. (Ability)
Can I speak to Raju, please? (Request)
The news *can be* true. (Possibility)

COULD is the past tense of ***can***. It is used to indicate *ability that existed in the past* and to ask ***polite questions.***

Eg: When he went to Mumbai a year ago he *couldn't understand* much Marathi. (But now he *can understand* everything). (Past ability)

Till last year I *could read* without glasses.

Could you please, *take* me to the director? (polite questions)

Could you *lend* me your mobile?

Activity -1 ***(Reading – Writing - Speaking)***

Fill in the blank in the following sentences using ***can/ could/may/might***

1. _____ you perform this trick?
2. When the fog lifts we _____ see where we are.
3. When I first went to Delhi, I _____ not speak Hindi but now I _____ speak it fluently.
4. I knew the city so I _____ guide him where to go.
5. At the age of 13 Sarojini _____ write poems.
6. When the police inspected the driver, he _____ convince them that he was innocent.
7. _____ I speak to Mr. Pramod, please?
8. If any letter comes to your address _____ you please re-direct it to my new address?
9. It _____ rain, you'd rather take an umbrella.
10. I am leaving for Calcutta, I _____ not see you again.

MAY/MIGHT/ WILL/WOULD/SHALL/SHOULD:

MAY

- ***May*** is used to express ***permission, possibility and wish***

  E.g.: *May* I *come* in, sir? (Permission)

  I *may visit* your place tomorrow. (Possibility)

  May God *bless* you! (Wish)

MIGHT

- ***Might*** is the past tense of 'may' and is used in indirect speech

  E.g.: She said she *might spend* an hour in her cousin's house.

WILL

Will expresses future time, willingness, intention, promise, determination and polite request.

E.g. I *will leave* for Hyderabad tomorrow (future)
I *will help* you by all means. (Willingness)

Will you *come* with me? (Intention)

I *will do* whatever I can? (Promise)

We *will fight* to the finish (determination)

Will you please *solve* this puzzle? (Polite request)

WOULD

- ***Would*** is the past tense of *will* and is used as such in Indirect speech. It expresses a wish/ choice or preference and polite questions:

E.g.: The Director said that the office *would work* on Sunday. (Past form)
I *would like to know* what my duty is(wish/choice)
Would you like to *have* a cup of tea? (Polite request)
Would you mind sending me the mail?

SHALL

- ***Shall*** is used to express the future with *I/We*.
  E.g. I *shall buy* a new camera tomorrow.
  We *shall go* on a picnic next Sunday.
- ***Shall*** expresses a command or threat when used with *You/ He/She/It/ They*
  E.g. You *shall pay* the fee before 15th
  He *shall be punished* for his negligence.
- ***Shall*** expresses an offer or suggestion when used with *I/We*.

  E.g. Shall I *do* this favour for you?
  Shall I *drop* you at the station?

SHOULD

'Should' expresses duty / obligation/ necessity.

E.g. You *should work* hard to succeed.

You *should submit* the income tax returns by March 20th

Activity -2 ***(Reading – Writing - Speaking)***

Fill in the blanks in the following sentences using ***will/ shall/would/ should***

1. My uncle _____ deliver a speech on Friday.
2. I _____ meet my brother at the station at 5:00 P.M.
3. The selection panel _____ meet next Monday.
4. I _____ go to the dentist tomorrow.

5. I _____ remember this day all my life.
6. If they win the world cup, each player _____ be paid Rs.1.00 Crore.
7. If you learn another language you _____ get a better job.
8. _____ you cook the fish for us?
9. My mother _____ be delighted when she hears this news.
10. _____ you mind opening the door?

Activity -3 ***(Group Work)*** ***(Reading – Writing - Speaking)***

Correct the following sentences

1. He can walked 5 Kms, a day.
2. When he was young he can swim across the channel.
3. May you please tell me how to solve this puzzle?
4. I wished I am a millionaire.
5. He would be glad if you help him.
6. If you had helped her she should solve the problem.
7. You will provide proper identification to cash the check.
8. May you lend me a thousand rupees?
9. I ring you as soon as she comes.
10. If I will go to Bangalore I will see my uncle

4. Modal Auxiliaries-II

Pre- activity:
Recall:

Can	**will**	**Must**	**Dare**
Could	**would**	**ought to**	**used to**
May	**shall**	**have to**	
Might	**should**	**Need**	

The verbs listed in the box above are called **Modal Auxiliaries**. Together with the main verbs that follow, they express the mode or manner of actions denoted by the verbs. In other words, they express such ideas as ***ability, probability, possibility, permission, obligation, duty or advisability*** etc.

- These modal auxiliaries do not change according to the number or person of the subject.
- They do not stand alone
- They are always followed by a main verb.
- After these modals the **base form of the verb** (V_1) should be used.

E.g.: You/ He/ They **may** go and **play**.
I / You / He/ They **can drive**.
He/ You **should** see a doctor.

MUST/ HAVE TO/ OUGHT TO/ NEED/ USED TO

- ***Must/* have to */ought to /need*** are used to express obligation/ duty.

I *must go* there in time.
We *must finish* the assignment by 2:00 P.M.
You *have to go* there at 9:00 A.M

- ***Ought to*** is used to express moral obligation.

We *ought to help* the poor.
You *ought to be* punctual.
He *ought to look after* his parents.
We *ought not to speak* ill of others

- ***Need*** is commonly used with 'not' in statements.
E.g.

It is used without 'not' in questions.

Need not expresses the idea that there is no compulsion.

You *needn't bring* the calculator. We will supply one

You *needn't pay* in single installment

Used to

Used to +V1 expresses a habit in the past.

E.g. I *used to play* cricket every Sunday in my student days.

He *used to visit* his native place every month.

Used to expresses the existence of something in the post

E.g. There *used to be* a school building in this place. Now an Apartment is being constructed

Activity -1 ***(Pair Work)*** ***(Reading – Writing - Speaking)***

Fill in the blanks in the following sentences using ***must/have to/had to/ought to/ need not***

1. You_____ read this book. it's really interesting.
2. All cell phones_____ be switched off.
3. You_____ do what your father says.
4. You_____ come to work in time.
5. The bus was full. I _____ take a taxi.
6. I was ill, so I _____ cancel my trip.
7. You_____ not smoke in the hall.
8. You _____ not do it. The maid will do all the work.
9. You _____ not pay the bill till Friday.
10. You _____ not forget to post the letters.

Activity -2 ***(Pair Work)*** ***(Reading – Writing - Speaking)***

Complete the following sentences with one of the following modal auxiliaries:
can/could/may/might/should/ought to/ shall/will

1. The film _____ not be viewed by those under 18.
2. You _____take an umbrella. It _____ rain.
3. Srinu _____ be 21 next month.
4. Due to heavy traffic we _____ be late by half an hour.
5. You look a bit confused. _____ I help you?
6. For your misconduct you _____ be ashamed of yourself.
7. I don't know the way to the post office. _____ I seek your help?
8. She is sick. She _____ go to a doctor.
9. You have worked all the day. You_____ be tired.
10. You _____ not eat too much. It's bad for health.

5. Question Tags

Small forms of question tagged to the end of a statement are known as question tags. They help the speaker seek affirmation or otherwise of the given statement. The question tags do not repeat all the information given in the statement. Only the pronoun form of the subject and the auxiliary verb are reversed in the question order [Aux+Pronoun]. The tag is always in the reverse form of the given statement. Hence, the negative form "n't" is added to the auxiliary verb if the given statement is positive and "n't" is avoided if the given statement is a negative.

Pre- Activity

Read the following passage and underline the question tags:

- Hari, just look at the painting. It is beautiful, isn't it?
- Last year we visited the Ajantha caves, didn't we?
- The paintings there were fabulous, weren't they?
- Unfortunately they weren't well preserved, were they?
- Why Ravi, you are not at all speaking, are you?
- It looks I am a conversationalist, aren't I?

Let's Recall the structure of a question tag

- A Question Tag is a short question form added to a statement
- It asks for agreement or confirmation
- The statement expresses an assumption and a question tag expects confirmation
- A Question Tag is both positive and negative

Eg: He can run fast. (Assumption)
He can run fast, <u>can't he</u>? (Confirmation)

Structure:

Positive QT: helping verb + pronoun form of subject?
Is/am/are/was/were/do/does/did/has/have/had + Pronoun

Negative QT: helping verb + not + pronoun form of subject?
Is/am/are/was/were/do/does/did/ has/have/had +Negative +Pronoun

Points to Remember:

- A Positive QT is added to a negative statement:

E.g.: The boys can't find it easy to do the sum, **can they**?

- A Negative QT is added to a positive statement:

E.g.: Sita has answered my call, **hasn't she?**
Hari speaks English, **doesn't he?**
They won the match, **didn't they?**

Note: There is a possibility of tagging a question form to a request and a suggestion also:

E.g.: Get me a glass of water, **can you? (Formal)**
Don't waste your time, **will you? (Formal)**
Don't waste your time, **would you? (Polite)**
Let's play in the garden, **shall we? (Suggestion)**

- With I am the QT is aren't I?
  E.g.: I am innocent, **aren't I? (*Not amn't I*?)**

- With used to the QT is didn't…
  E.g.: She used to go for a swim, **didn't she?**

- With had better/had rather the QT is hadn't…?
  E.g.: You had rather wait, **hadn't you?**

- When offer/invitation is expressed the QT is won't you?
  E.g.: Come in, **won't you?**

- With I, We + will the QT is shall/can
  E.g.: We will start the game now, **shan't we? (Not won't we?)**

Activity -1 ***(Pair Work)*** ***(Reading – Writing - Speaking)***

Match statements given under **Column A** with appropriate tags under **Column B**:

Column A	Column B
1.He is not doing homework.	aren't we?
2.Gopal broke this chair.	aren't I?
3.She likes pop music.	didn't he?
4. We are doing home work.	Is he?
5. I am watching the movie.	doesn't she?

Activity -2 ***(Pair Work)*** ***(Reading – Writing - Speaking)***

Supply question tags to the following statements:

1. I did not accept his gift, _____?
2. Lakshmi cannot do this sum, _____?
3. They will not go home early, _____?
4. Hari has never played the violin, _____?
5. Both of them are not in the same class, _____?

Activity -3 *(Group Work)* *(Reading – Writing - Speaking)*

Correct the following tags:

1. He hardly moved an inch from his seat, didn't they?

   Ans:

2. You had better apply for the job, don't you?

   Ans:

3. Raghu used to smoke too much, did he?

   Ans:

4. Mohan can help us in this case, won't he?

   Ans:

5. I play tennis every evening, am I?

   Ans:

6. Saritha will buy both milk and sugar, will he?

   Ans:

7. You must go home today, must you?

   Ans:

8. Hareesh writes poetry, isn't it?

   Ans:

9. This work will take two hours for us to complete, aren't they?

   Ans:

10. I will speak to you very soon, will I?

    Ans:

6. Simple Present Tense

The Simple Present Tense is also known as Present indefinite or Present Simple. It expresses an action that is repeated, regular or usual. The action can be a habit, a hobby, a daily event, a scheduled event or something that often happens. It also speaks of one's likes and dislikes. The Simple Present can also be a fact that was, is and will continue to be true. It is also used to make generalizations about people or things. It also talks about scheduled events in the near future. The present simple is associated with expressions such as daily, always, usually, everyday, often, never, regularly, habitually etc.

Pre- Activity

Observe the action words in the following sentences:

1. *Raju **wakes** up at 6:00 AM. He **brushes** teeth and **drinks** milk. He **does** not **want** to have breakfast before going to school.*
2. *I **like** mangoes but I **do** not **like** oranges.*

Structure: Subject +V (1) + (s/es)
Example:

1. I/We/You/They + write (positive)
   I/We/You/They + don't write (negative)
2. He/She/It + writes (positive)
   He/She/It + doesn't write (negative)

Don't = do not
Doesn't = does not

Simple Present is used to indicate:

a. Regular/ repeated/daily/habitual actions

1. I wake up early in the morning.
2. Raju reads *The Hindu* every day.

b. Universal Truths/Facts:

1. Water flows downwards.
2. India is our country.

c. Verbs of senses: see, hear, smell etc.

Verbs of feeling: want, wish, desire, like love, dislike, hate etc.

Verbs of thinking: think, suppose, know, understand, believe, agree, and remember

Verbs of possession: have possess, own, belong etc.

Verbs of appearing: appear, look, seem etc.

Other verbs: cost, weight, contain, consist of, depend on, include etc.

[These verbs are not normally used in continuous tense]

1. I smell something burning
2. I like English.
3. I own a house.

d. Planned Future Actions

1. The CM visits Rajahmundry on 15th of this month.
2. He opens the stadium at 11.00 a.m.

e. Narrations like jokes, stories and commentaries:

1. In this film NTR plays the role of a cowboy.
2. Sachin hits a sixer and rounds off a century.

Activity -1 ***(Reading – Writing - Speaking)***

Read the following sentences and specify whether each indicates habitual action/ universal truth / fact / perception/ feelings)

1. Raju never forgets to do his homework.
2. My teacher speaks two languages.
3. Water boils at 100 degrees Celsius.
4. I don't understand Greek.
5. He believes in God.

Activity -2 ***(Reading – Writing - Speaking)***

The following is Lalitha's daily routine. Fill in the blanks with *Simple Present Tense*. First one is done for you.

I **wake** (wake) up at 5:00 AM daily. I _____ (not, drink) coffee in the morning. I_____ (leave) for college by 9:00 AM. My mother tells me, "If you _____ (not, eat) breakfast you will grow weak." I _____ (not, have) time for breakfast as I _____ (take) three buses to reach college. My teacher _____ (not, like) to see me late in the class. She _____ (want) her students to be in time.

Activity -3 ***(Reading – Writing - Speaking)***

Questions and Negatives game*

Write questions and negatives to the following sentences:
The first one is shown as an example.

Eg: Vijay likes mangoes.

Answer: Does Vijay like mangoes? (Q)
Vijay doesn't like mangoes. (N)

1. I read novels.
2. We watch movies on weekends.
3. You always sing songs.
4. Raghu writes letters to his friends.
5. Children play cricket on Sundays.

Activity -4 *(Reading – Writing - Speaking)*

Correct the following sentences:

1. We watches TV programs on holidays.
2. Girls doesn't plays foot ball.
3. Saritha don't drink coffee every day.
4. I am tasting the honey.
5. Ravi is going for morning walk every day.
6. He is possessing a movie camera.
7. Sugar was sweet.
8. We are knowing the facts
9. Do Sita love movies?
10. The teacher is wanting her students to excel

Activity -5 *(Reading – Writing - Speaking)*

The District Collector is visiting your college next week for the college day celebrations. Plan the day's schedule right from the Collector's arrival till his/her departure.

Hints: The District Collector arrives- reception- parade- college tour- Auditorium- welcome guests- lighting of lamp- prayer song- speech- college day report- gold medals- prize distribution- collector's speech- cultural programs- vote of thanks

Activity -6 *(Reading – Writing - Speaking)*

Summarize/narrate briefly a movie you have seen recently using simple present:

Key Words:

Time expressions: always, frequently, regularly, daily, on Sundays etc., sometimes, once a year, month, every day, every morning, every evening, every hour, occasionally, often, ever, rarely, hardly, seldom, never…

7. Present Progressive Tense

Present Progressive/ Continuous Tense is used to express the idea that something is happening now, at this very moment. In the Present Continuous tense, the action is on-going/ still going on at present and hence continuous. The present continuous tense is used to talk about actions that are happening at this moment – before our eyes, when we are listening or watching indicated by words 'look,' 'see', 'listen' and 'at the moment' etc.

Pre- Activity

Read the following sentences and observe the action words and their structure:

1. It **is raining**
2. Is she **talking** on phone?
3. You **aren't coming** to school.

Action Words: *is raining, is talking, aren't coming*

The structure of action words in Present Continuous Tense:

Statement: be (is/am/are) + V (1) + ing

Eg: He+ is+ work+ing

Question: be (is/am/are) +Subject + V (1) + ing

Eg: **Am + I + work + ing?**

Negative: be (is/am/are) + NOT+ V (1) + ing

Eg: I **am +NOT+ work + ing.**

❖ **Present Continuous is used to talk about:**

- **An action taking place at the moment of speaking**

  Eg. The students are playing cricket now
- **An action happening about this time but not necessarily when speaking**

  Eg. I am translating some Telugu stories into English
- **An action taking place in the nearest future**

  Eg. I'm going to buy an apartment next week
- **Repeated actions that seem unreasonable.**

  Eg. You are always making a noise when I pray. (Expressing Annoyance /Irritation)

- **These verbs are not normally used in continuous tense**
  1. **Verbs of senses:** see, hear, smell etc.
  2. **Verbs of feeling:** want, wish, desire, like love, dislike, hate etc.
  3. **Verbs of thinking:** think, suppose, know, understand, believe, agree,
  4. **Verbs of possession:** have possess, own, belong etc.
  5. **Verbs of appearing:** appear, look, seem etc.
  6. **Other verbs:** cost, weight, contain, consist of, depend on, include etc.

E.g. My father ~~is loving~~ me so much.
My father loves me so much

E.g. I ~~am smelling~~ the aroma of flowers
I smell the aroma of flowers

1. But these verbs are used in progressive in a special meaning:

Eg: 1.They are having (organizing) a party in the evening.

2. Ravi is feeling (groping) for the matchbox in the dark.

Activity -1 ***(Reading – Writing - Speaking)***

(Questions and Negatives Game)

Activity -2 ***(Reading – Writing - Speaking)***

Write **questions** and **negatives** to the following sentences:

Eg. Statement : We **are playing** cricket.
Question : **Are** we **playing** cricket?
Negative : We **are** *not* **playing** cricket.

1 They are preparing for the bank examination.
2 Sujitha is preparing tea.
3 Kumar and Ravi are going to market.
4 I am sending an e-mail.
5 You are coming to my house.

Activity -3 ***(Reading – Writing - Speaking)***

Raghu has a fixed daily routine before he leaves for college. But today his routine appears to be different. Read the paragraph and choose Simple Present for routine actions and Present Continuous for actions different from the routine.

Raghu _____ (gets/is getting) up early every day to study. But today he _____ (gets/ is getting) up very early to attend the chores at as he wants to participate in a competition. He generally _____ (has/is having) idly or puri for breakfast. But now he _____ (has/is having) instant noodles as he _____ (runs/is running) out of time. When his friend asks him how he _____ (goes/is going) to college today, he replies, —I always _____ (travel, am travelling) by bus, but today as I am late, I _____ (go, am going) by auto.

Activity -4 *(Reading – Writing - Speaking)*

See that the students who did not get a chance in the previous activity are given an opportunity here

Fill in the blanks with Simple Present or Present Continuous.

1. Girls _____ (hear) a loud noise outside the class.
2. _____ you _____ (see) a black spot on the screen?
3. It _____ (smell) terrible. I can't bear it.
4. Radha _____ (not, think) about the consequences of her action.
5. These days he _____ (see) his friends a lot.

Activity -5 *(Reading – Writing - Speaking)*

Read the following dialogue between Ramu and Somu and fill in the blanks with appropriate tense form of the verb supplied:

Ramu : I ---------- (plan) to go to the exhibition this evening. ----you ---------- (want) to join me?

Somu : Sure. Where can I meet you?

Ramu : Right now I ---------- (leave) for my village. I ----------(want) to bring my brother. He ---------- (like) joyrides.

Somu : -------- (Be) he ---------- (go) to stay with you for some time?

Ramu : No, he ---------- (have) some work in the bank. He ---------- (want) to open an account. ---------- (do) you ----------(have) an account with Andhra Bank?

Somu : No, I ---------- (not). I ---------- (be) also---------- (plan) to open an account.

Ramu : Ok. Let's meet at the railway station.

Activity -6 *(Reading – Writing - Speaking)*

You are going to celebrate a festival. Tell your friend how you are going to make the day a special one by comparing with your normal routine. Frame five sentences: [waking time, clothes, places you prefer to visit, food etc.]

E.g.: Normally, I **do not wake up** so early but today I **wake up** before sun rise.

1.
2.
3.
4.
5.

Time Expressions:

Now, at the moment, at present, right now, these days, still, nowadays, etc.

8. Present Perfect and Present Perfect Progressive Tenses

Present Perfect tense indicates an action completed a little before the present time. It also indicates an action that happened at an unspecified time before now. You CANNOT use the Present Perfect with specific time expressions such as: yesterday, one year ago and last week. Instead, it can be used with unspecific expressions such as: ever, never, once, many times, several times, before, so far, already, yet, etc.

We use the Present Perfect Continuous to show that something started in the past and has continued up until now. There is usually a result **now**. We can also use the present perfect continuous tense to talk about an **action** that started in the past and is continuing **now**. This is often used with **for** or **since**.

Pre- Activity

Read the following passage and observe the tense of the verbs:

I have been residing in this area for the last ten years. Let me tell you the exact year. It has been since 2001. My landlord has been a perfect gentleman, very understanding and friendly. We have been requesting him for minor repairs from time to time and he has always been very obliging and prompt. Now we have a new problem. The tap in the backyard has started leaking and the main door has developed cracks. I have not bothered about them, but my children have been reminding me about them. I have called our landlord just now.

Let's recall:

1. <u>Present Perfect Tense</u>:

Structure : ***I/we/you/plurals +have +V3***

He/she/it/names + has +V3

E.g. We <u>have seen</u> the movie.
She <u>has gone</u> to the theatre.

Negatives : **have/has + not**

Eg: I <u>haven't had</u> breakfast

Questions : **have/has + subject+**.....?

Eg: <u>Have</u> you <u>finished</u> the work?

Present Perfect Tense is used:

- To denote any completed action that is linked to the present time
- Normally used with words like **already, ever, never, yet, so far, just now, till now,** etc.

E.g. I have never asked for his help. (till now)
The boy has already met me twice. (So far)

2. Present Perfect Progressive:

Structure: I/we/you/plurals + ***have + been + ing***
He/she/it/names + ***has + been + ing***

E.g. I have been working on this project since last year.
She has been sleeping for the last 3 hours.

Present Perfect Progressive is used:

- To denote a past action progressing till the present moment
- Normally used with **"since"** and **"for"**.

Eg: Sita has been learning music for a year. (Period of time)
I have been writing poetry since 2000. (Point of time)

Activity -1 ***(Reading – Writing - Speaking)***

Match the following with correct time expressions:

1.	The milkman has come	yet.
2.	Sarat has bought a house	since morning.
3.	They haven't met me	just now.
4.	She has been talking on the phone	Recently.

Activity -2 ***(Reading – Writing - Speaking)***

Fill in the following blanks with Present Perfect using the verbs given in the brackets:

a. They _____ not_____ my books. (return)
b. Mohan _____ off the lights yet. (not, switch)
c. _____ you ever _____to Agra? (go)
d. So far we _____ six lessons. (complete)
e. Sarala _____ already _____ this movie twice. (watch)

Activity -3 *(Reading – Writing - Speaking)*

Fill in the following blanks with Present Perfect Progressive using the verbs given in brackets:

1. I _____ for it since morning. (search)
2. They _____ the mountain since yesterday. (climb)
3. How long _____you_____ on this project? (work)
4. _____Smitha _____ breakfast? (have)
5. Lakshman _____ for me since the afternoon. (wait)

Activity -4 *(Reading – Writing - Speaking)*

Complete the dialogue with Present Perfect/ Present Perfect Continuous tense using words given in brackets.

Raghu : _____ you _____ to the circus? *(go)*

Smitha : No. I haven't. How long _____?(*run)*

Ragh : For the last two weeks. But I_____ already ____ it twice (see)

Smitha : Is it? Who _____ you? (Accompany)

Smitha : My cousin.

Activity -5 *(Reading – Writing - Speaking)*

Correct the following sentences:

1. I have visited Delhi in 1980.
2. He has been learning French for 2 months.
3. We studied in this college since 2007.
4. How long are you waiting for me?
5. The postman had not come yet.

9. Simple Past: Questions And Negatives

Pre- Activity

What did Rajesh do on Sunday? Read the following and pick up the negative and question forms:

On Sunday Rajesh **didn't wake up** at 6:00 AM.
When **did** he **wake up**?
He **woke up** at 9:00 AM.

He **didn't get up** at 6:15 AM.
When **did** he **get up**? He **got up** at 9:30 AM.
He **didn't go** to the office.

Where **did** he **go**?
He **went** to the bathroom.
He **didn't have** a shower.

Then what **did** he **have**?
He **had** a bath.

After his shower he **didn't have** a cup of coffee.

What **did** he **do**?
He **had** a shave and **brushed** his teeth.
He **didn't eat** breakfast at about 7:00 AM.

When **did** he **eat**?
He **ate** breakfast at about 10:00 AM.
After breakfast he **didn't read** the newspaper.

Where **did** he **go**?
He **went** for a run.
After his run he **didn't go** to work.

Where **did** he **go**?
He **went** to meet his friends.

Let's Recall:

GRAMMAR HELP:

Structure of verb in simple past in questions and negatives:

Negatives: (i) "Be" form: wasn't, weren't- E.g.:

He wasn't happy.

They weren't happy.

(ii) "Action verbs": didn't + V1- E.g.:

He didn't ask for my help.

They didn't ask for my help.

Questions: (i) Was/were ('Be') + subject- E.g.:

Was he happy?

Were they happy?

(ii) Did + Subject + V1- E.g.:

Did they ask for my help?

Did he ask for my help?

- ***To form the negative* of a sentence in the Simple Past:**
  S+did + not + infinitive of the verb.
  E.g. I **did not play**.

Did not is often written as **didn't** to show the spoken form.

- I **didn't** play
- They **didn't** play
- She **didn't** play

For the negative and interrogative form of **all** verbs in the simple past, always use the Auxiliary ***did.*** Observe the following table for better clarity:

Positive Statement	Interrogative Statement	Negative Statement
I worked	Did I work?	I didn't work.
You worked.	Did you work?	You didn't work.
She/he worked.	Did she work?	She/he didn't work.
It worked.	Did it work?	It didn't work
We worked.	Did we work?	We didn't work.
They worked.	Did they work?	They didn't work.

Activity: 1

Negatives and Questions game*
Listen to the past verbs given by your teacher and respond according to his instructions:

Activity -2 *(Think Pair Share)*

Write the negative and question forms to the following as shown in the example:

Eg: I posted the letters.
I did not post the letters. (N)
Did I post the letters? (Q)

1. Prakash woke up at seven.

N :

Q :

2. The Children ran home.

N :

Q :

3. I forgot to take the book with me.

N :

Q :

4. We turned off the computer.

N :

Q :

5. My friend played cricket.

N :

Q :

Activity: 3

Create a dialogue between Rakesh and Sridhar using the hints given below:

Rakesh: Hello Sridhar, how are you?

Sridhar: Hi Rakesh, I am fine. What about you?

R: Fine Sridhar, thank you.

S: You. ..... (do/not) come to college yesterday?

T: No. I ..... (attend) a marriage.

S: ..... (do) you .....(attend)?

R: I ..... (leave) the college at 3pm.

S: What..... You (do) at 3pm?

R: I..... (attend) a lecture in General Library building

S: what was it about?

R: It was about 'Society and Films'.

Activity: 4

Complete the following story using Simple Past Tense. Use as many questions and negatives as possible:

One hot day, a thirsty crow flew all over the fields looking for water.....

Activity: 5

Correct the following sentences:

1. He didn't worked hard.
2. Did they went to college?
3. Rajesh didn't comes to class.
4. He prepares food yesterday.
5. Where did you kept the book last night?

10. Simple Past and Present Perfect Tenses

Simple Past or Past Simple tense expresses the idea that an action started and finished at a specific time in the past. Sometimes, the speaker may not actually mention the specific time, but they do have one specific time in mind. We use the Simple Past to list a series of completed actions in the past. The Simple Past can also be used to describe a habit which stopped in the past. It can have the same meaning as "used to."

Present Perfect is an action completed a little before the present time. It also indicates an action happened at an unspecified time before now. You CANNOT use the Present Perfect with specific time expressions such as: yesterday, one year ago and last week etc. Instead, it can be used with unspecific expressions such as: ever, never, once, many times, several times, before, so far, already, yet, etc.

Pre- Activity

Observe the following sentences and identify the tense of the verb:

Dear Rajesh,

I went to Hyderabad last week. I did not visit any places. What about you? Did you see the Charminar?

Structure:

Statement: Subject + V2:

Negative: Subject + did not + V1

Question: Did + Sub+V1

Simple Past Tense is used:

1. To express a completed action usually with a past adverbial

   E.g. I went to Hyderabad last week.
   I did not visit the Zoo.

2. To question an unknown past time.

   E.g. When did you buy this shirt?

Present Perfect Tense:

Structure: Subject + Has / Have + Past Participle

E.g. I / we / you / they have passed the exam.
He/ she/ it/ has passed the exam.

Present Perfect Tense is used to indicate:

1. A past action with impact till the present

   Eg. I have seen the girl several times (I still remember)

   I have just had a tea. (Impact still felt on tongue)

2. One present action preceding another

   E.g. He claims that he has solved the problem.

3. Actions which occur with expressions such as: just now, recently, so far, up to now, until now, yet, still, for the last two yrs etc.

   E.g. We have completed three chapters so far.

Activity 1

Identify and write the negative form of the tense used in the following sentences.

Eg: He <u>saw</u> me in the market.
Answer: saw= simple past.
Negative: He <u>did not see</u> me in the market.

1. He completed law last year.
2. My brother left for Delhi yesterday.
3. I have known him for a long time.
4. My servant refused to work.
5. She has gone to the Market.
6. Have you seen the exhibition?
7. I have just read an article about trees and pollution.
8. They decided to introduce a new course book.
9. I saw her last night.
10. He has sent the mail.

Activity 2
Same procedure as for activity 1
Fill in the blanks with suitable verb forms (Simple Past/ Present Perfect)

1. I --------- (see) Dal Lake. I _____ (see) it in 2005.
2. He ---------- (not eat) since morning but he --------- (eat) yesterday.
3. It ---------- (rain) for 2 hours. It ---------- (not rain) the entire last year.
4. --------- you ---------- (visit) the Taj?
5. We ---------- (not get) the result so far.

Activity 3

Correct the errors in the following sentences wherever necessary:

1. When I go out, it was raining.
2. You grow a lot since I saw you last.
3. My English really improved since I joined JKC.
4. She has slept for nine hours last night.
5. I have had my dinner long ago.
6. I has learn how to read.
7. I ate nothing since morning.
8. She had worked for three different companies so far.
9. We are not planted many trees yet.
10. Where do you buy this shirt yesterday?

Activity 4 (TPS)

What did you do yesterday? Use the following hints and describe:

brush, bath, college, breakfast, classes, library, exercise, cinema

11. Simple Past and Past Progressive Tenses

Simple Past/Past Simple expresses the idea that an action started and finished at a specific time in the past. Sometimes, the speaker may not actually mention the specific time, but they do have one specific time in mind. We use the Simple Past to list a series of completed actions in the past. The Simple Past can also be used to describe a habit which stopped in the past. It can have the same meaning as "used to."

In the Past Continuous tense, the action was ongoing till a certain time in the past. This tense is used to talk about an action at a particular time in the past.

Pre- Activity

Observe the italicized words and understand the tense form in the following sentences:

1. We **were preparing** for the exam last night.
   I was **walking home** when I met my friend.

Past Progressive:

Affirmative	**Interrogative**	**Negative**
I/He/She/It +was + V +ing	Was+I/He/She/It+V+ing?	I/He/She/It + was not +v+ing
We/You/ They + were+V+ing	Were + We/You/They +V+ ing?	We/You/They + were not+V+ing
I was playing.	Was I playing?	I was not playing.
He was working.	Was he working?	He was not working.

Past Simple tense refers to an action completed at a definite time in the past where as Past Progressive refers to an action progressing at a definite time in the past.

I **lived** there for six years.
I **found** it out only a few moments ago.
I **asked** her but she didn't know anything.
The company **recruited** 100 candidates last year.

Use Past Progressive tense when you want to emphasize the continuity of the action.

- Everybody was talking about it all evening.
- They were really trying hard but couldn't do it.
- I was thinking about you the other day.
- Were you expecting that to happen?

When we use these two forms in the same sentence, we use the Past Progressive Tense to talk about the "background action" and the Past Simple Tense to talk about the shorter completed action.

It was raining hard when we left the building.

I was reading the report when you rang.

He was going out to lunch when I saw him.

The company was doing well when I visited it last.

(source:http://www.englishgrammarsecrets.com/pastsimpleorcontinuous/menu.php)

Activity 1

Choose the appropriate verb to fill the blank.

1. I _____ to meet you twice, but you weren't home.(was coming/ came)
2. I _____ and I didn't hear you call me. (was studying/ study)
3. Hey, did you see the film? Yes, I _____ it last night.(was seeing/saw)
4. We _____ the match when he walked into the room. (watched/were watching)
5. I _____ when the invigilator took my exam paper.(still wrote/was still writing)
6. At 8.30am yesterday I ---------- at the bus stop. (waited/was waiting)
7. What --------- you -------- at this time yesterday? (did/were doing)
8. He -------- TV at 10pm and didn't hear the knock on the door. (watched/was watching)
9. ---------- you still ------- at 10pm last night? (worked/ were working)
10. Why_____ she _____ at 4pm in the office? (slept/ was sleeping)

Activity 2

Use Simple Past or Past Progressive Tense:

1. They …… (note) the important points while the coach ……(explain) the rules.
2. While we …… (discuss) a project, my friend …….. (Chat) on the phone.
3. While they …….(sleep), the burglar …….(break) into the house.
4. It ……..(get) dark and so Ramya ……(stop) her work and went home
5. Raju ---------- (paint) a picture while Amala ---------- (watch) a documentary on TV

Activity 3

Use Past Progressive Tense and prepare meaningful sentences:

Example: I saw a snake while I was coming from college.

1. The music system was on but nobody ----------
2. While I ..... Mahesh took my photograph.
3. The police caught the driver while he ----------
4. Sekhar called me while I ----------
5. The child fell asleep while it ----------

Activity 4

Correct the following sentences.

1. He said that the doctor is coming back soon.
2. What were you do there at that time?
3. Sister was helped mother.
4. When the class is going on Ravi fell asleep.
5. I am writing letters at 7 pm last night.
6. Are they running business last year?
7. When his father comes, he was still doing his homework
8. When the children were watching TV, the thief has entered the house
9. Sensing something is wrong, I approached him.
10. He came out of the ATM and said that it is not working.

(Source: ***English Grammar for Intermediate Classes*** – by N. Krishnaswamy)

Activity 5

Write an outline of a news report about a robbery that took place in your street yesterday using Simple Past and Past Progressive Tenses.

(Hints: place of the robbery – time – number of robbers-description – how they entered – loot – how were they attacked – police – trapped – caught)

12. The Future Time

Simple Future Tense shows an action supposed to take place at sometime in future. The simple future has two different forms in English: "will" and "be going to." Both "will" and "be going to" refer to a specific time in the future. "Will" often suggests that a speaker will do something voluntarily. It shows Predictions or guess about what might happen in the future. 'Going to' refers to the nearest future action the arrangements of which have already started in the present.

Study the verbs in the following sentences:

1. Raju **will finish** the work tomorrow.
2. Kumar **is going to visit Vizag** next Sunday.

Let's recall:

Simple Future Tense

The Simple Future of any verb is formed with the auxiliary 'will' or 'shall', followed by the bare infinitive of the verb.

In informal English, particularly in American English, the Simple Future is usually conjugated entirely with the auxiliary 'will'. The auxiliary 'will' is a modal auxiliary. Modal auxiliaries do not modify, but have the same form, regardless of the subject.

The auxiliary 'will' is often contracted to 'll'. Thus, in informal English, the Simple Future form of the verb 'to work' is usually conjugated as follows:

Without Contractions	With Contractions
I will sing	I'll sing
you will sing	you'll sing
he will sing	he'll sing
she will sing	she'll sing
it will sing	it'll sing
we will sing	we'll sing
they will sing	they'll sing

Purpose:

- It expresses the speaker's opinions, speculations.
  E.g.: He will win the race
- For formal announcements of forthcoming plans in media
  E.g.: The president will inaugurate the seminar tomorrow
- It is used in conditional sentences when the verb in the 'if clause' is in the present tense.
  E.g.: He will get the first rank if he works hard.

Activity -1 *(Reading – Writing - Speaking)*

Write the correct form of the simple future tense using 'will/shall'.

1) He _____ (eat) noodles for lunch.
2) I think they _____ (watch) the match tonight.
3). I _____ (submit) my assignment tomorrow.
4) Santhi _____ not _____ (attend) college on Monday.
5) We _____ (travel) by bus to work next week.

Activity -2 *(Pair Work)* *(Reading – Writing - Speaking)*

Complete the following sentences using "will or going to" (future action).

1. A. Why are you buying potatoes?

   B. I _____(go) to make chips.
2. A. I don't know how to use the washing machine.

   B. It is easy, I _____(show) you now how to use it.
3. A. Why are you carrying an umbrella?

   B. It is cloudy. It _____ rain (go).
4. A. Have you had your lunch?

   B. No. I_____(have) now.
5. A. I don't like my car. It is outdated.

   B. Are you_____(go, sell) it?

Activity -3 *(Pair Work)* *(Reading – Writing - Speaking)*

Let one student in the pair use "will and the partner use won't"

1. *After 5 mts, pick up students at random and ask them to share their answers with the class.*
2. *Let other students listen and share their answers.*
3. *Observe, give your input and explain.*

Use "will/won't + infinitive" to complete the sentences below.

E.g. I **<u>will become</u> a doctor** when I grow up.

1. I _____ tomorrow morning.
2. I _____ next week.
3. I _____ the day after tomorrow.
4. I _____ after I finish my homework.
5. I _____ if I get a high score on my test

Activity -4 *(Reading – Writing - Speaking)*

Choose the correct option and fill the blanks

1. If my friend ----------pick me up, I'll take the bus home (doesn't / didn't)
2. If she ---------- us, we will go to the party. (invite/ invites)
3. If you speak English well you ---------- successful. (were / will be)
4. My friend ---------- meet me at the airport if he gets the afternoon off. (will / would)
5. If they play as a team they ---------- win the match. (will / will have)

Activity -5 *(Pair Work)* *(Reading – Writing - Speaking)*

Work in pairs and discuss:

What will your village/ town/city be like in 10 years?

- *Other forms to express the future:*

Study the following sentences:

1. The PM ***visits*** AP on the 5th of April.(To express a definite future action)
2. I ***am planning*** a tour abroad next summer.(An arranged action in future)
3. It is too hot. **I'll turn on** the air conditioner.(Instant decision)
4. I ***am going to*** make tea for the guests.(Intention to perform an action in immediate future)

It's going to rain again I believe.(Prediction, immediate future)

13. Concord

Concord is also known as agreement in English grammar. It deals with the meaningful relationship between the subject and the verb. The basic rule in English is that a singular subject takes a singular verb whereas a plural subject takes a plural verb. Problems occur in determining whether the subject is singular or plural and whether a certain verb is singular or plural. Mother tongue interference is responsible to some extent for the problems in concord.

Pre- Activity

Activity -1 ***(Pair Work)*** ***(Reading – Writing - Speaking)***

Fill in the following blanks with one of the options provided after each sentence.

Eg: Raja is a gentleman. (Is/are)

1. I_____ a teacher. (is/am)
2. One of our teachers _____ very resourceful.(are/is)
3. There _____ many students working on the project. (was/were)
4. Saritha _____ a fine dancer before her marriage. (was/were)
5. We _____ a lot to discuss on this matter. (have/has)
6. The couple _____ a wonderful dinner. (has/have)
7. Neither of them _____ the defeat. (accept/accepts)
8. You _____ a great variety in these books. (find/finds)
9. Two and two _____ (makes/make) four.
10. The selection of lecturers _____ (take/takes) place tomorrow.
11. These pliers _____ (holds/hold) things firmly.
12. Either of the two brothers _____ (attend/attends) the wedding.
13. Raja and Sita _____ (works/work) in the same office.
14. Bread and butter _____ (make/makes) a wholesome food.
15. Where---------- (is/are) my spectacles?

Activity -2 *(Pair Work)* *(Reading – Writing - Speaking)*

Same steps as above

Correct the following sentences if necessary:

Eg: Measles are infectious. (Wrong)
Measles is infectious. (Correct).

1. A lot of students is participated in the hunger strike.
2. Most milk are wasted away.
3. Neither of us know what the story is about.
4. The Principal as well as the teachers lives in the quarters.
5. One of the books are very interesting.
6. My uncle and guide correct my thesis.
7. There have been much interruption during the lecture.
8. Neither the chairman nor committee members was present in the hall.
9. Each student have answered three questions.
10. The captain along with the team members are returning home.
11. Either he or I is expected to meet the Principal.

Activity -3 *(Group Work)* *(Reading – Writing - Speaking)*

Given below are sentences which are divided into four parts (a, b, c, d). Identify the error if any and mark it. If no error is found, mark it as "e".

1. Though there was a heavy rain (a)/a number of students (b)/were (c)/present in the class (d)/. No error (e).
2. Advertisements (a)/on television (b)/ has become (c)/ very popular these days (d). No error (e).
3. The effects of cigarette smoking (a) proves (b)/ to be hazardous (c)/ beyond any doubt (d). No error (e).
4. Either my wife (a)/ or my mother (b) prepare breakfast (c)/ in the morning every day (d). No error (e).
5. The use of credit cards (a)/ are (b)/ in practice (c)/ among affluent people. (d)/. No error (e).
6. The chairman (a)/accompanied by (b)/ several members of the committee (c)/ have visited the college (d)/. No error (e).
7. The scientific study (a)/ of a language (b)/is called (c)/ linguistics (d)/. No error (e).
8. The majority of students (a)/ in the college (b)/believe him (c)/ to be innocent (d)/. No error (e).
9. The scheme and plan of our college (a)/designed by the expert committee (b)/ for future development (c)/ is highly commendable (d)/. No error (e).
10. Neither the team mates (a)/nor their captain (b)/ were (c)/ available for comments (d)/. No error (e).
11. These trousers (a)/ that I have bought (b)/ are (c)/ too loose for me (d). No error (e).

Caroms (a)/ are (b)/ such a wonderful game (c)/ that many like to play it (d). No error (e).

14. Conditional Clauses

Read the following sentences and guess what each sentence means:

If I go home early I will/can assist my mother.

If I went home early I would/could assist my mother.

If I had gone home early, I would have/could have assisted my mother.

What did you find in the above sentences? Do they mean the same or different?

GRAMMAR HELP

Conditional clauses are of three types:

TYPE-1 : Here the *result is possible* (very likely to take place) *if the condition is fulfilled.*

Structure of sentence:

If + clause in present tense ..... + result in future time (or a MODAL + V1)

e.g.: If you *take* down running notes in the class, you *will get* a lot of benefit.

If she *speaks* for two minutes, she *can influence* anybody.

If he *is snoring*, please *wake* him up (imperative in the result: or *you can wake him up*)

TYPE-2 : Here the result is very unlikely (improbable) if the condition is fulfilled (a little chance)

Structure of sentence:

If + clause in past tense.... + result in conditional past (would/should/could/might +V1)

e.g.: If you *took* down running notes in the class, you *would get* a lot of benefit.

If she *spoke* for two minutes, she *could influence* anybody.

If he *was snoring*, you *should wake* him up.

(Note: Type-2 situations refer to present time. But the action in the result is not possible because the condition is not fulfilled)

If I *had* your mobile number, I *would* certainly *talk* to you. (*I haven't had your number*)

Look at this example:

If he ***were*** the Principal of this college, he *would make* every student give a seminar.

[Use 'were' (but not 'was') with "I/he/she/it/name" in type-2 conditions]

TYPE-3: Here the result is impossible, and the condition refers to the past (*unfulfilled condition*)

Structure of sentence:

If + clause in past perfect .... + result in conditional perfect (would have/should have +V3)

e.g.: If you *had taken* down running notes in the class, you *would have got* a lot of benefit.

If they *had run* faster, they *should have caught* the bus.

If she *had spoken* for two minutes, she *would have influenced* anybody.

Note: Type-3 suggests the opposite of what we expect from the sentence.
e.g.: *Had I passed* Intermediate, I *would have gone* for engineering.
(this means that, *I failed* in intermediate and that *I didn't go* for engineering)

Activity -1 ***(Pair Work)*** ***(Reading – Writing - Speaking)***

Match the following under Column-A with those under Column-B

Column-A	Column-B	
1. If they had won in the first round	a. I would feel better	[ ]
2. If Sita invites me	b. she would have stood topper in the college	[ ]
3. If you participate in chess competition	c. his father will be happier	[ ]
4. If I took rest a while	d. I will attend her marriage	[ ]
5. If Raja is earning money	e. You will have won the match	[ ]
6. If she had really scheduled her time	f. they would have gone to the play offs	[ ]

Activity -2 ***(Pair Work)*** ***(Reading – Writing - Speaking)***

Choose the appropriate answer from the options given in brackets and fill in the following blanks:

1. Unless Sarala finds the keys she _____ (cannot open/could not open/could not have opened) the door.
2. If I thought seriously during the exam, I _____ (would have attempted/will attempt/ would attempt) at least three questions.
3. Open the windows if you _____ (wanted/want/wants) fresh air.
4. If they fought well, they_____ (should win/should have won/will win) the battle.
5. If I am happy, I _____ (can make/could have made/could make) others happier.
6. Unless we start now, we _____ (cannot reach/could not have reached/could not reach) our village by night.
7. Please forgive me, if I _____ (speak/spoke/speaks) anything wrong.
8. Let's rush immediately, if we _____ (wants/want/wanted) to see the movie right from the titles.

Activity -3 ***(Group Work)*** ***(Reading – Writing - Speaking)***

Complete the following sentences with appropriate expressions:

1. If I am free now, _____.
2. You cannot use my computer, unless you _____.

3. I would miss the bus, if I _____.
4. Unless you see the Principal, you _____.
5. I would have made all the difference, if you _____ in the final team.
6. If you choose the right group in intermediate course, you _____
7. You will fall down here, if you _____.
8. If she has used these materials, she _____.

Activity -4 ***(Pair Work)*** ***(Reading – Writing - Speaking)***

Correct the following sentences if necessary:

1. If she knows the time, she **would come** to the meeting.
2. She **would have attended** the meeting if she had the time.
3. Priya **will say** yes to this proposal if you asked her politely.
4. Unless he **finishes** soon, we would not be able to come.
5. If he **were** president, he would have invested more in education.
6. She **will fly** Indian Airlines if she had a choice.
7. If I **think** I could do it, I would do it!
8. She wouldn't marry Prasad unless he **asks** her.

Remember:

Don't use 'UNLESS' and 'NOT' in the same condition.

'UNLESS' means 'IF+NOT'

e.g.: Unless you don't come on time I will feel disappointed (X)

Unless you come on time I feel disappointed. (√)

15. Voice

Voice means the way of saying the same statement in two different points of view – the subject point of view [SVO] and the object point of view [OVS]. The subject begins the Active voice whereas in passive voice it is the object which begins. Sometimes subject is even avoided in passive voice if it is unimportant or understood from the context. The tense and the meaning remain unchanged during transformation though the structure of the sentence undergoes change.

Pre- activity:

Read the following examples and observe the structure:

The people complained to the King of Hamelyn;
"Your Majesty! Our children **were injured**. Our food grains **were eaten**. Our clothes **were torn**. Our furniture **was damaged**. And our houses **were spoiled**." The King asked, "Who did all this?" The people replied, "We don't know."

Let's Recall:
Passive Voice is used when the focus is on the action.

- In the example above, the focus is on the fact about a great loss. People do not know, however, who did it.
- Only Transitive Verbs, with objects after them can be changed into passive voice.
- Intransitive Verbs, with no objects after them cannot be changed into passive voice.
- In active voice, the verb is independent.
- In passive voice, the verb is dependent. It comes after the 'be' form.

Observe the following example:

Rani **drinks** water.

Water **is drunk** by Rani. (be form + Past Participle (V3)

While rewriting active sentences in passive voice, we need to observe the following:

- the object of the active sentence becomes the subject of the passive sentence
- the finite form of the verb ('be' form) is changed (*to be* + past participle)
- the subject of the active sentence becomes the object of the passive sentence (or dropped)

Activity -1 *(Reading – Writing - Speaking)*

State whether the verbs of the following sentences are in active voice or passive voice.

1. The mouse was killed. active/passive
2. My Mother was making tea active/passive
3. The loud music woke up the baby. active/passive
4. The assignment was submitted yesterday. active/passive
5. Rajani has been writing for a long time. active/passive

Activity -2 *(Pair Work)* *(Reading – Writing - Speaking)*

a. Observe the following table with different passive forms and fill in the blanks given below:

Simple Present	*Active:*	Rajitha	writes	a letter.
	Passive:	A letter	is written	by Rajitha
Simple Past	*Active:*	Rajitha	wrote	a letter.
	Passive:	A letter	was written	by Rajitha
Present Perfect	*Active:*	Rajitha	has written	a letter.
	Passive:	A letter	has been written	by Rajitha
Future	*Active:*	Rajitha	will write	a letter.
	Passive:	A letter	will be written	by Rajitha.
Modals	Active:	Rajitha	can write	a letter.
	Passive:	A letter	can be written	by Rajitha

Eg: .Many fatal accidents are *caused* by reckless driving.

1. Cheese ---------- from milk (make).
2. Two thousand people..... for the Royal wedding in London last month (invite).
3. A theatre is a place where movies ---------- (screen).
4. The college gates.....---------- at 6:30 every evening (lock).
5. A new vaccination ---------- for cancer recently (discover).

b. Change the voice of the verbs of the following sentences:

1. They will read books.
2. He is painting a picture.
3. Rajan played cricket.
4. I have sent the mail.
5. You can complete the work.

Activity -3 ***(Pair Work)*** ***(Reading – Writing - Speaking)***

Observe the following table with different passive forms and complete the task given below:

(Group Work)

Present Progressive Tense	*Active:*	Rajitha	is writing	a letter.
	Passive:	A letter	is being written	by Rajitha.
Past Progressive Tense Tense	*Active:*	Rajitha	was writing	a letter.
	Passive:	A letter	was being written	by Rajitha.
Past Perfect Tense	*Active:*	Rajitha	had written	a letter.
	Passive:	A letter	had been written	by Rajitha
Future Tense	*Active:*	Rajitha	will have written	a letter.
	Passive:	A letter	will have been written	by Rajitha.
Conditional Clause-I	Active:	Rajitha	would write	a letter.
	Passive:	A letter	would be written	by Rajitha
Conditional Clause-II	Active:	Rajitha	would have written	a letter.
	Passive:	A letter	would have been written	by Rajitha

Write the active/passive forms of the following sentences:

1. A letter was being written by Mahesh.
A._____

2. Kumar is playing cricket.
_____

3. The film will have been made by Kishan

_____

4. She would have locked the door.

_____

5. The teacher had completed that chapter.

_____

Activity -4 *(Pair Work)* *(Reading – Writing - Speaking)*

You attended an interview with your friend. Work in pairs and speak about the interview using active and passive voice. A clue is also given.

You: I was asked ten questions by the board.

Your Friend: _____

You:

Friend:

You:

Friend:

16. Reported Speech

Speech is of two types namely: Direct speech and the indirect speech. In fact, we use both of them quite often in our mother tongue also. Direct speech refers to the actual words spoken by a person. It is shown in quotations. The indirect speech, known as reported speech is the reported version of the direct speech by one, other than the speaker. It is removed from the direct speech in terms of space and time. The indirect speech is not quoted. Further, we don't see any questions or exclamations with the interjections in the indirect speech.

Pre- Activity

Read the following:

1. Ravi: Raju, Where are you going?
2. Raju: I am going to college.
3. Raju to Srikant: Ravi asked me where I was going and I replied him that I was going to college.

Sentence 1 shows conversation between Ravi and Raju. It is **in the present tense**. It is **quoted**. It is called **Direct Speech**.

Sentence 2 shows Raju's report to Srikant over what has happened. It is **in the past tense**. It is **not quoted.** It is called **Indirect Speech.**

DIRECT SPEECH	INDIRECT SPEECH
1. Live conversation between two persons. Usually quoted.	Conversation is reported after some time. It has no quotations.
2. The verb in side quotations can be in any tense. E.g. He said to Ramu, —I go/went/shall go to movies	The tense of the introductory verb runs throughout the sentence E.g. He **told** Ramu that he **went/had gone/would go** to movies

Tips for Transformation:

- Direct speech can be in the mood of a statement/request/order/question/ exclamation
- The mood of the speech part decides the introductory verb and Conjunction in the indirect speech
- Tense changes, pronoun changes and space changes also occur in indirect speech

Note:

1. If the reporting verb in the direct speech is in the present/future tense the tense in the reported speech continues to be present.
2. Universal truths and proverbs also continue to be in the present in the reported speech.
   E.g. The teacher says, —Water is essential for life.
   The teacher says that water is essential for life.

Activity: 1

Observe the following examples and fill in the blanks with appropriate words:

Direct Speech	Indirect speech (Reported Speech)
He **says**, "I **am** fine."	He **says** that he **is** fine.
He **says to** me, "I **like** you."	He **tells** me that he **likes** me.
Gopi **will say**, "I **don't know** anything about it."	Gopal **will say** that he **does not know** anything about it.

1. Raju says that he _____(like) mangoes.
2. Kiran tells Madhu that he _____ (have/ see) in the market.
3. Rajesh says that his father _____ (going) to Kolkata.
4. He will say that he _____ (cannot/do) that.
5. We say that we _____ (will win) the match.

Activity-2

Observe the following examples and fill in the blanks with appropriate words:

Direct Speech	Indirect speech [Reported Speech]
Statements	**Said/told + that**
She **said to** Ramu, "I **like** movies."	She **told** Ramu that she **liked** movies.

1. Raju told me that he ---------- (don't/go) to college the previous day.
2. Heera said that she _____ (want) an application form.
3. You told me that _____ (will/come) to my house.
4. The teacher said that I _____ (cannot/get) good marks.
5. Sachin said that he _____ (will play) well in the next match.

Activity -3 *(Pair Work)* *(Reading – Writing - Speaking)*

Direct Speech	Indirect speech [Reported Speech]
Requests:	**Requested + Obj+to+V1**
She **said to** Ramu, "**Please get** me a ticket."	She **requested** Ramu **to get** her a ticket.
Orders:	**Ordered + Obj + to+V1**
She **said to** Ramu "**Get** me 2 tickets."	She **ordered** Ramu **to get** her 2 tickets.

Eg. The boss said to the clerk, "Submit all the accounts today."
The boss <u>ordered</u> the clerk <u>to submit</u> all the accounts that day.

1. Ravi said to his wife, "I am not going to office today."
   Ravi ---------- his wife ----------he was not going to office that day.
2. Ravi said to his wife, "Please get my shirt ironed."
   Ravi ---------- his wife ----------his shirt ironed.
3. Ravi said to his wife, "Get my shirt ironed."
   Ravi ---------- his wife ----------his shift ironed.
4. Ravi said to his wife, "Will you get my shirt ironed?"
   Ravi ---------- his wife ----------she would get his shirt ironed.
5. Ravi said to his wife, "When will you get my shirt ironed?"
   Ravi ---------- his wife ---------- she would get his shirt ironed.

Activity -4 *(Pair Work)* *(Reading – Writing - Speaking)*

Questions:	Asked + Obj+whether/wh word +Sub+helping verb
She **said to** Ramu, "**Will** you bring the tickets?"	She **asked** Ramu **whether** he **would** bring the tickets.
She **said to** Ramu, "**When will** you bring the tickets?"	She **asked** Ramu **when he would** bring the tickets.

1. He says to me, "Can you come to pick me up at 10:00 AM?"
2. They asked him, "How is your father?"
3. Sujitha said to Pavan, "When are you planning for picnic?"
4. Kumar said to Mahesh, "Is this your best film?"
5. Charan says to his father, "Where are you going?"

Activity -5 *(Reading – Writing - Speaking)*

Identify whether the sentence is in Direct speech or Indirect Speech and convert them into the other speech.

Eg. She said that he was a gentleman.
He said, "I am a gentleman."

- Vani told Gita that she was very busy.
- The Commander ordered the soldiers to open fire at once.
- The boy said to the teacher, "Please permit me to go out."
- "What a nice idea it is!" my friend said to me.
- She said to him, "when will you visit me?"

Activity -6 *(Group activity)* *(Reading – Writing - Speaking)*

Read the conversation between Gopi and Sunil and write a brief report on the conversation using indirect speech.

E.g. Bhishma: "Please teach the tricks of archery to my grand children."
Drona: "It is an honour to me to teach archery to your grand children."

Ans. Bhishma requested Drona to teach archery to his grandchildren. Drona replied that it was an honour to him to teach archery to his (Bhishma's) grand children.

Gopi : Religion should not be included in application forms

Sunil : But how can the govt. know the data on religions.

Gopal : There are several ways of collecting the data.

Sunil : This is one of those ways.

Gopal : But it makes students conscious of their religious identity.

Sunil : I don't think so because we all enjoy our identities.

Gopal : If identity will develop into ego and create a rift among students.

Sunil : O God! How foolish you are!

Activity: 7

Correct the following sentences.

E.g. He <u>proved</u> that he <u>is</u> right. (Was)

1. He said that he will look into the matter.
2. She told me that she saw me somewhere.
3. He says that it was not true.
4. The teacher said that the earth revolved round the sun.
5. My friend asked me that where I was going.
6. Sita asked Raju when he would visit her house.
7. Gopi told to me that to leave for my native place.
8. The quotation reads that money made many things.
9. His boss grants him permission that he might go.
10. She promised him that she will marry him.

17. Articles

Pre- Activity

There are two types of articles in English language: the definite article (*the*) and the indefinite article (*a/an*).

- We usually use a/an with a singular countable noun when mentioned for the first time.
- We also take into account the initial sound of the adverb, adjective and noun.
- Singular nouns with initial vowel sounds take 'an'.
- Singular nouns with initial consonant sounds take 'a'.

Use of a/an

He is wearing **a** suit and **a** tie.
He is eating **an** apple.
They have **a** cat.

We use **the** with:

- **Rivers, mountain ranges, seas, oceans and geographic areas** all use **'the'**
  For example, "**The** Thames", "**The** Alps", "**The** Atlantic Ocean", "**The** Middle East".
- **Unique things** have **'the'**.
  For example, "**the** sun", "**the** moon".
- **Musical instruments** use **'the'**.
  "She plays **the** piano."
- **Jobs** use **'a'**.
  "I'm **a** teacher."
- **Countries**
  We don't use **'a'** if the country is singular. "He lives in England." But if the country's name has a "plural" meaning, we use **'the'**. "**The** People's Republic of China", "**The** Netherlands", "**The** United States of America"
- **Continents, towns and streets** don't have an article. "Africa", "New York", "Church Street".
- **Theatres, cinemas and hotels** have **'the'**. "**The** Odeon", "**The** Imax", "**The** Liberty".
- **Abbreviations** take **'the'**.
  "**the** UN", "**the** USA", "**the** IMF".
- We use **'the'** before **classes of people**
  "**the** rich", "**the** poor", "**the** British"

Articles are not used:

1. **Before the name of a person**
   Example: I am a fan of Sachin Tendulkar. (not A or The Sachin Tendulkar)
2. **Before the name of a place, town, country, street, or road.** Example: Mumbai is a clean city. (not A or The Mumbai)

3. **Before names of materials**

   Example: The table is made of wood. (Not A or The wood)

4. **Before abstract nouns used in a general sense**. Example: Truth is beauty. (not a beauty or the beauty)

5. **Some institutional buildings** don't have an article if you visit them for the reason these buildings exist. But if you go to the building for another reason, you must use **'the'**.

   "Her husband is in prison." (He's a prisoner.)
   "She goes to **the** prison to see him once a month."

   "My son is in school." (He's a student.)
   "I'm going to **the** school to see the head master."

   "She's in hospital at the moment." (She's ill.)
   "Her husband goes to **the** hospital to see her every afternoon."

6. **Sports** don't have an article.

   "He plays football."

7. **Illnesses** don't have an article.

   "He's got appendicitis."

But we say "**a** cold" and "**a** headache".

Activity-1:

Read the following passage from Mahatma Gandhis "*My Experiments withTruth*" and fill in the blanks with correct articles wherever necessary:

I should clearly not attempt ..... autobiography. But my purpose being to give .... account of various practical applications of these principles, I have given ..... Chapters I propose to write .... title of .... *Story of My Experiments with Truth*. These will of course include experiments with..... non-violence, celibacy and other principles of conduct believed to be distinct from ..... truth. But for me,..... truth is ..... sovereign principle, which includes numerous other principles. This truth is not only truthfulness in word, but truthfulness in thought also, and not only ..... relative truth of our conception, but ..... Absolute Truth, ... Eternal Principle that is God. There are innumerable definitions of God, because His manifestations are innumerable. They overwhelm me with wonder and awe and for a moment stun me. But I worship ..... God as Truth only. I have not yet found Him, but I am seeking after Him. I am prepared to sacrifice ..... things dearest to me in pursuit of this quest.

Activity -2 *(Pair Work)* *(Reading – Writing - Speaking)*

Identify and correct the following sentences wherever necessary:

1. I saw snake in park beside my house
2. Rajesh always tells the truth.
3. Ganges is longest river in the India.
4. I came to the school to attend Maths class.
5. A Raju is good boy.
6. Sachin is great cricketer.
7. Though Government is working hard, poor cannot live like rich.
8. He is suffering from headache.
9. Shakespeare is Kalidasa of England.
10. Kiran plays the football very well.

18. Adjectives

Adjectives are words which modify or describe nouns – words such as **tall** girls, **vanilla** cake, **green** grass etc. The adjective modifies a noun by one of several suffixes such as -able, -ous, -er and –est etc. Depending upon the quality the adjective modifies, the adjectives are divided into several types.

Pre- Activity

Observe the following sentences

1. Latha is a ***beautiful*** girl.
2. I ate ***some*** rice.
3. They are ***honest*** people.

The words in italics describe people and things. They are called **adjectives**.

Types of Adjectives:

1. **Adjectives of quality** describe the kind or quality of a person or thing.

   E.g. Hyderabad is a **large** city.

   Rajesh is an **intelligent** student.

2. **Adjectives of quantity** answer the question how much?

   E.g. He lost ***all*** his wealth

   I did not eat ***any*** ice cream

3. **Adjectives of number** answer the question how many?

   E.g. There are ***no*** mistakes in this note

   Sunday is the ***first*** day of the week.

4. **Demonstrative adjectives** answer the question which?

   E.g. ***That*** boy is hard working

   These mangoes are ripe

5. **Possessive Adjectives** modify nouns by showing possession or ownership

   E.g. my , your , his , her , its , our , their

   (E.g. my dog, their party, your house)

6. **Interrogative adjectives** are used with nouns to ask questions. The questions words **what, which** and **whose** are called interrogative adjectives

   E.g. ***Which*** way shall we go?

   Whose pen is this?

Activity -1 *(Pair Work)* *(Reading – Writing - Speaking)*

Read the following passage from Somerset Maugham's *Liza of Lambeth* and underline the adjectives:

It was the first Saturday afternoon in August; it had been broiling hot all day, with a cloudless sky, and the sun had been beating down on the houses, so that the top rooms were like ovens; but now with the approach of evening it was cooler, and everyone in Vere Street was out of doors.

Vere Street, Lambeth, is a short, straight street leading out of the Westminster Bridge Road; it has forty houses on one side and forty houses on the other, and these eighty houses are very much more like one another than ever peas are like peas, or young ladies like young ladies. They are newish, three-storied buildings of dingy grey brick with slate roofs, and they are perfectly flat, without a bow-window or even a projecting cornice or window-sill to break the straightness of the line from one end of the street to the other.

Activity -2 *(Pair Work)* *(Reading – Writing - Speaking)*

Use each of the following adjectives in a sentence.

Strong, polite, clever, dull, hard, gentle, happy, fast, sincere, blue, few, long, lazy, slow

Example: Her **polite** manners got her the job

Activity -3 *(Pair Work)* *(Reading – Writing - Speaking)*

Describe yourself using ten adjectives:

19. Comparison of Adjectives

When we want to compare two or more nouns using adjectives, we use the comparative and superlative forms of the adjective. The **Comparative Forms** are used when we are comparing two nouns and need to show which noun possesses the adjective or character in a greater or lesser amount, when compared with the other. - bigger, sweeter, cleaner, etc. **The superlative** form is used when three or more nouns are being compared and we need to show that one or more of the nouns posse the adjective or characteristic to the highest amount possible. We usually add 'the' before the superlative form and 'than' after the comparative forms. – 'the biggest', 'the sweetest' and 'bigger than' and 'sweeter than' etc..

Pre- Activity

Observe the changes in adjectives of the following sentences:

- Kumar is a **clever** boy.
- Ramana is **cleverer than** Kumar.
- Sanjay is **the cleverest** boy in the class.

The Adjective:

- The Adjective modifies the noun.
  E.g. Hari is intelligent.
  This is a useful dictionary.
- Degrees of comparison determines the degree of an adjective with the help of comparison.
- The adjective has three degrees
  - The *positive* degree: e.g. young, beautiful, good etc.
  - The *comparative*: e.g. younger, more beautiful, better etc.
  - The *superlative*: e.g. youngest, most beautiful, best etc.

The three degrees of comparison of adjectives:

a. *positive degree* is indicated by the first form of the adjective: e.g. **good, great** and **tall** etc.
b. *comparative degree* is used to compare two persons, places, or things: e.g. **better, greater** and **taller** etc.
c. *superlative degree* is used to compare three or more persons, places ,or things: e.g. **the best, the greatest** and **the tallest** etc.

Observe the following table to find how comparison is made:

POSITIVE DEGREE	COMPARATIVE DEGREE	SUPERLATIVE DEGREE
Gopal is not **so** tall **as** Raja.	Raja is taller than Gopal.	**Nil**
Very few/many other boys are **as** tall **as** Raja.	Raja is taller than **most other** boys.	Raja is **one of the** tallest boys.
No other boy is **so** tall **as** Raja.	Raja is taller than **any other** boy.	Raja is the tallest boy.

Positive	Comparative	Superlative
Good	better	Best
little	less	Least
Bad	worse	Worst
Much/many	more	Most
Far	Farther/further	Farthest/furthest
old	elder/older	eldest/oldest

Activity -1 ***(Pair Work)*** ***(Reading – Writing - Speaking)***

Identify the degree of the following sentences and write in the space provided:

Eg. Sita is wiser than Gita (Comp. Degree)

1. This room is more spacious than that. ( )
2. I am not so tall as you. ( )
3. This is the most interesting case. ( )
4. Akbar is one of the most powerful Mughal kings. ( )
5. No other student is so brilliant as Suresh. ( )

Activity – 2

Follow the same steps as for activity 1.

Fill in the blank choosing the right word supplied in brackets:

1. Tom is ---------- than John [older/elder]
2. There are ---------- girls than boys here. [less/fewer]
3. This is ---------- tree in the forest. [oldest/eldest]
4. Which is the ---------- of the three sisters [wisest/wiser]
5. Honour is ---------- to wealth. [preferable/ more preferable]

Activity -3 *(Group Work)* *(Reading – Writing - Speaking)*

Eg. The Nile is ***the longest*** river in the world. [Sup. Degree]
The Nile is ***longer than*** any other river in the world. [Comp. Degree]
No other river in the world is ***so long as*** the Nile [Pos. Degree]

Change the following sentences into other possible degrees using the table above.

1. Very few students in this class are as intelligent as Gopal.

A:

2. Shakespeare is the greatest dramatist in English.

A:

3. Lead is heavier than iron.

A:

4. The Tajmahal is more wonderful than many other monuments in the world.

A:

5. Sita is taller than any other girl.

A:

6. Some fruits are not sweeter than an apple.

A:

7: Gitanjali is one of the most poetic of all Tagore's works.

A:

8. Kalidasa is the most popular Sanskrit dramatist.

A:

9. Copper is more useful than any other metal.

A:

10. Kolkata is farther than Mumbai.

A:

Activity – 4

Correct the following sentences, if necessary:

1. Sarala is wiser than anybody in our office.
2. Milk is preferable to fish.
3. Somu is tallest of the two brothers.

4. There are less tables than chairs.
5. Hari is duller of the two boys.
6. This is the most largest room in our college.
7. The car is much more cheaper than the truck.
8. Rajesh is the most unique person I have ever met.
9. Lakshmi is one of the most intelligent girls in the class.
10. This is a more perfect example.
11. The climate of Hyderabad is better than Guntur.
12. She is the tallest of the two sisters.
13. The Hindu is more popular than any newspaper.
14. This book is better.
15. The plays of Shakespeare are more interesting than Shaw

Points to Remember:

1. The positive degree usually takes *as* + positive +*as/ so* + positive + *as*'.
2. The comparative degree is usually followed by *than*'.
3. The superlative degree is usually preceded by *the*'.
4. Superlative is not possible when two/less than two nouns are involved.
5. *Avoid doubling* of comparatives or superlatives. E.g. more taller, most tallest.
   - Words like junior, senior, anterior, posterior, inferior, superior, elder are followed by 'to' and not by 'than'

     Words expressing absolutes, like zero, perfect, square do not have/take any degrees.

20. Prepositions

Prepositions are words (on, in, to) that usually occur in front of nouns or noun equivalents. They are preceded by a noun, an adjective or a verb. Even advanced learners of English find prepositions difficult due to mother tongue influence. One preposition in our native language might have several translations depending on the situation. There are very few rules as to when to use which preposition. The only way to learn prepositions is looking them up in a dictionary and wide reading of English.

Pre- Activity

Observe the bolded words in the following passage.

Last year I went ***to*** Kolkatta ***by*** train ***with*** my uncle ***on*** a holiday trip. We started ***at*** 7:30 ***in*** the morning. We reached there ***around*** 800 PM. We waited **for** our brother **near** the hotel. He was expected **from** New Delhi. He arrived only **after** 10:00 PM.

Let's recall:

- The bolded words above are prepositions.
- A preposition occurs usually before a noun or noun equivalent.
- It gives information about time, place, cause, purpose, direction etc.

A preposition shows **relationship** of a noun with another noun, verb or adjective.

Eg: She is *angry with* me. (With Adjective)
I *agree with* you. (With Verb)
He has a great *love for* English. (With Noun)

Frequently used Prepositions:

on, in, at, for, by, with, to, since, for, before, after, across, along, between, from, of, off, till, below, under, above, beside, besides etc.

Some Phrasal Prepositions:

according to, because of, in case of, with reference to, in favour of, in front of, in accordance with, on behalf of, in addition to, in spite of, with regard to, by means of, for the sake of, out of, due to, owing to, instead of etc.

1. Use of important Prepositions:
On:

1. The book is <u>on</u> the table. (On the top of)
2. Let's meet <u>on</u> Monday. (Before days of the week)
3. We got independence <u>on</u> 15th of August. (Before dates)

4. We wear new clothes on Diwali. (Before festivals)
5. She watched the movie on the TV (Also before Radio and Telephone)
6. He is on duty. (Involved)

In:

1. Fish live in water (inside)
2. We started early in the morning (part of day)
3. You look fine in a sari (clothes)
4. He was born in 1962 (years)
5. Rains come in June [month]
6. It will snow here in winter. [Season]

At:

1. She is waiting at the main gate. (near)
2. Meet me at 8:00 AM. (exact time)
3. Don't disturb us. We are at work. (busy with)
4. Wild animals hunt at night. (night and noon)
5. Don't look at me like that. (in the direction of)
6. Good at, clever at, aim at etc.
7. He lives at Kadiyam. (Villages and specific areas)

Of:

1. He is the son of a farmer. (belonging to)
2. He died of cancer. (reason)

From:

1. It is two kilo meters from office to home. (place)
2. The office is open from 7:00 AM. (time)

By – with:

1. He was killed by a hunter with an arrow (by-agent, with-instrument)
2. He lives by the river. (beside)
3. Complete the work by 15th of this month. (not later than)

Between – Among:

1. There are no differences between you and me. (clear number)
2. Vijayawada lies between Guntur, Eluru and Gudivada. (clear number)
3. There were differences among the soldiers. (vague number)

Beside – Besides:

1. She sat beside me. (by the side of)
2. I have a cycle besides a scooter. (in addition to)

Since – for:

1. He has been limping since the accident. (with exact time/incident)
2. I have been waiting here for the last two hours. (period of time)

Along – across:

1. People stood along the road to welcome the CM. (direction-vertical)
2. People stood across the road to stop the CM. (direction-horizontal)

2. Use of some Phrasal Prepositions:

Because of: (reason)

E.g.: The game was suspended be*cause of* heavy rain.

In accordance with: (according to)

E.g.: He performs his duties *in accordance with* the service rules.

On behalf of: (in the place of sb/sth)

E.g.: I extend a warm welcome to you all on behalf of the institution.

In addition to: (extra)

E.g.: *In addition to* routine duties the senior teacher is acting as the Principal.

Contrary to: (against)

E.g.: His statements are *contrary to* his actions.

3. Prepositions following Nouns, Verbs and Adjectives:

Prepositions following Nouns:

E.g., Love for, descent from, dislike of, want of, attention to, key to, access to, pity for, reputation for, acquaintance with , relationship with ,

Prepositions following Verbs:

E.g. Ask for, beg for, escape from, suffer from, aim at, smile at, revel in, Emerge from, draw from, jump at, laugh at, consist of, apply to,

Prepositions following Adjectives:

E.g. anxious about, curious about, eager for, eligible for, famous for, fit for, Sorry for, absent from, keen on, aware of, capable of, accustomed to,

4. Same word taking two prepositions:

E.g.	Agree to something	Die of cancer	Look at someone
	Agree with somebody	Die with injuries	Look for someone

Activity -1 *(Pair Work)* *(Reading – Writing - Speaking)*

Fill in the blanks with appropriate preposition from the options given in brackets:

1. This is a cheque _____ Rs. 5000. (of/for)
2. I wrote a quick note _____ pencil. (with/in)
3. She goes home _____ her own car. (in/by)
4. She has been waiting _____ a week. (since/for)
5. It is 7pm _____ my watch. (in/by)
6. He has a strong passion _____ (of/for)
7. I prefer fish _____ chicken. (than/to)
8. I always sit _____ my close friend Ravi. (beside/besides)
9. She always boasts _____ her wealth. (of/about)
10. She is senior _____ me. (to/than)

Activity -2 *(Pair Work)* *(Reading – Writing - Speaking)*

Fill in the blanks with prepositions that can follow the verbs in bolded form:

1. I **belong** _____ Rajamundry.
2. He **left** _____ London last week.
3. Mumbai is **famous** _____ textile industry.
4. His father is **known** _____me.
5. He is **good** _____ English.
6. She is **tired** _____ hard work.
7. The Police Inspector is **looking** _____ the murder case.
8. I am **sure** _____ your success.
9. Let's **congratulate** him _____ his success.
10. We **pray** _____ god every day.

Activity -3 *(Pair Work)* *(Reading – Writing - Speaking)*

Discuss with your partner and fill in the blanks with appropriate *phrasal preposition* from the list provided:

1. _____ Poverty he came out successfully.

2. _____ your letter dated 15th September I have the following to say.
3. He went to town _____ buy new clothes.
4. The match has been cancelled _____ heavy rain.
5. _____ the staff and the Principal, I offer my vote of thanks.
6. _____ curiosity I opened the box and searched inside.
7. He is fighting with the government _____ the poor people.
8. The college remains closed tomorrow _____ Diwali.

(On behalf of, on account of, with reference to, for the sake of, out of, in spite of, owing to, in order to)

Activity -4 *(Group Work)* *(Reading – Writing - Speaking)*

Identify the error in the following sentences and correct it:

E.g.: This is **called as** Periodic Table.
Answer: This is **called** Periodic Table.

1. The boys (a)/entered into (b)/ my room without asking for permission (c)/. No error (d).
2. We discussed seriously (a)/ about (b)/ the recent trends in films (c). No error (d)
3. He (a)/ has (b)/ no house to live (c)/. No error (d)
4. We did not listen (a)/ what the teacher was saying (b)/ because of the noise outside the class room (c)/. No error (d)
5. Uncle won't agree (a)/ with (b)/ my suggestion (c)/. No error (d)
6. These chairs (a)/ are made (b)/ with wood and steel (c)/. No error (d)
7. I am not happy (a)/ on (b)/ what is going around me (c)/. No error (d)
8. I have been paying (a)/ income tax (b)/ since ten years (c)/. No error (d)
9. There are (a)/ many differences of opinion (b)/among wife and husband (c)/. No error (d)
10. The old man (a)/ was killed (b)/ with a highway man by a dagger(c)/. No error (d).

21. Use of Conjunctions in Simple, Compound and Complex Sentences

Conjunctions are also known as linking devices. It is a common phenomenon in all languages. Conjunctions join two words, phrases, clauses or two sentences. We use an appropriate conjunction matching the relationship between the two parts. There are one word conjunctions and at times two words conjunctions. Sometimes the entire conjunction is used at one place and at other times, it is used at two different places. Conjunctions are three types. They are coordinating Conjunctions, subordinating conjunctions, and correlative conjunctions. Depending upon the nature of the conjunctions, we use them in simple, compound and complex sentences.

Read the following sentences and find out the differences:

1. Ramu went to station.
2. Ramu went to station <u>and</u> boarded a train.
3. Ramu, <u>who went to station</u>, boarded a train.

- The first sentence has only one subject and one verb. (*Ramu, went*)
- The second sentence is a combination of two sentences (two verbs-*went &boarded*) connected by ***and*** (Coordinating conjunction)
- The third sentence has two parts – *one with complete meaning* (Ramu boarded a train) and *one with incomplete meaning* (who went to station). The part with complete meaning is called the *main or independent clause* and the part with incomplete meaning is called the *dependent or sub-clause.*

GRAMMAR HELP

According to the clause structure, sentences can be divided into four kinds - Simple, Compound, and Complex.

Don't get worried to know about these. If you are able to concentrate, you will be able to understand and use them in your speech. We need to use both simple and long sentences in our speech and writing.

A <u>simple sentence</u>, (also called an independent clause) contains a subject and a verb, and it expresses a complete thought.

E.g.: 1.The cow gives milk.
2. A dog barked.
3. He built a house

A <u>compound sentence</u> contains two independent clauses joined by a coordinator.

The coordinators are as follows: *for, and, nor, but, or, yet, so, "and, both .... and, not only----- but also, either ... or, neither ... nor, as well as, but, wherever, nevertheless, etc.,)*

E.g.: I tried to speak English, **and** my friend tried to speak Hindi.

A complex sentence has an independent clause joined by one or more dependent clauses. A complex sentence always has a subordinator such as *because, since, after, although, even though, though, as if, or when* or a relative pronoun such as *that, who,* or *which.*

E.g. You can use it ***if you like.***

I was absent ***because I missed the bus.***

(Some other subordinating conjunctions: whose, whom, why, where, when, whenever, wherever, as, while, till/until, before, after, as soon as, since, as long as, now that, so that, if, unless, etc.)

Activity -1:

Work in pairs and find out whether the following sentences are *Simple, Compound or Complex:*

1. Owing to drought, the crop failed.
2. He took bribe and he was dismissed.
3. To avoid arrest, the thief ran away.
4. We woke up when the day dawned.
5. As the wind is favorable, the ship set sail.
6. The sage took pity on the mouse so he changed it into a cat.
7. In spite of being ill, he continued to work.
8. As we are planning to leave the village, we shall sell the land.
9. Although he is lazy, he ran well.
10. By his pleasing manners, he won the love of all.

Activity -2 ***(Group Work)*** ***(Reading – Writing - Speaking)***

Underline the conjunction and state whether the sentence is Compound/Complex.

1. Keep quiet or you will be taken to task.
2. Unless you work hard you will not get the reward.
3. He is poor, but happy.
4. The beggar is not only blind but also deaf.
5. As she is my wife, I love her so much.

Activity -3 ***(Pair Work)*** ***(Reading – Writing - Speaking)***

Convert the following sentences into simple sentences

1. You must not be late or you will be punished.
2. He is rich, yet he is not happy.
3. We must work or we must starve.
4. He not only robbed the old man, but also killed him.
5. The piper advanced and the children followed.

Activity -4 *(Pair Work)* *(Reading – Writing - Speaking)*

Fill in the blanks with suitable conjunctions from the list given below:
(Neither-nor, either-or, but, both-and, otherwise, because)

1. He looks _____ a fool _____ a mad man.
2. You must pay electricity bills in time _____ you will have power no more.
3. You should _____ tell the truth _____ keep quiet.
4. He is_____ a scientist _____ a philosopher.
5. He ran well _____ he could not catch the train

Activity -5 *(Pair Work)* *(Reading – Writing - Speaking)*

Combine the following sentences choosing appropriate conjunction from the list given under:
(Who, which, that, when, since, where, if, though, unless, whether, where – as)

1. The boy was caught. He had stolen the watch.
2. It may rain. Then the match will be cancelled.
3. You must work hard. Otherwise you won't pass.
4. This is an old fort. This was built by Akbar.
5. This is Raju's house. The theft had occurred here.

Activity -6 *(Group Work)* *(Reading – Writing - Speaking)*

Correct the following sentences if necessary, and mark the part of the sentence (a, b, c, d) where the error lies, if there is no error mark it (e)

1. Although (a)/ Madhu was successful in his job (b)/ but he failed miserably (c)/ in personal life (d)/ . No error (e)
2. While lying in the park (a)/ a scorpion bit (b)/him suddenly (c)/and slipped off (d)/.No error (e)
3. No sooner had the teacher (a)/ entered the class (b)/ when (c)/ the students stood up (d)/. No error (e)
4. In addition to (a)/ being poverty (b)/ he was cunning (c)/ and dishonest (d)/. No error (e)
5. I asked him (a)/ who he was (b)/ where was he from (c)/and why he came (d)/. No error (e)
6. As this beautiful lady beside me (a)/ is my better half (b)/ so I love her (c)/utmost in the world d)/. No error (e)
7. Hardly did he (a)/ hear the knock on the door (b)/ than he began (c)/to shiver all over like a piece of dry leaf (d)/. No error (e)
8. Either his wife in the house (a)/ nor the children from outside (b)/ should have broken (c)/the window pan yesterday (d)/. No error (e)
9. When she opened the door (a)/then she was shocked (b)/ to find a stranger insider (d)/. No error (e)
10. Scarcely had she/[a] come out of the house/[b] than a car came/[c] to pick her up/[d] to the railway station/. No error (e)

SPEAKING SKILLS

22. Vowel Sounds

Pre- Activity

Read the following words, observe the sounds of the italicized letters:

b*ea*ch, b*u*sy, d*ea*d, pl*ai*t, *au*nt, h*ea*rt, w*oo*l, b*i*rd, s*ay*, b*oa*t, br*o*wn

Now observe the sounds of the above words as represented in their phonetic transcription:

/biːtʃ /, /bɪ z.i/, /ded/ , /pl eɪ t/, /ɑ :nt/, /hɑ :t/, , /wʊ l/, /bɜ :d/, /seɪ /, /bəʊ t/, /braʊ n/

Let's Recall

English Vowel Alphabet: a, e, i, o, u
Vowel Sounds produced by these letters: 24
English letters are not English sounds

1. There is no one-to-one correspondence between the letter and the sound.
2. The English vowel sounds are more in number than the vowel letters.
3. So it is easy to represent these different sounds by using International Phonetic Alphabet. [IPA]

VOWELS				DIPTHONGS	
ʌ	**cup, luck**	ɪ	**hit, sit**	aɪ	**five, eye**
ɑː	**arm, father**	iː	**see, heat**	aʊ	**now, out**
æ	**cat, black**	ɒ	**hot, rock**	eɪ	**say, eight**
e	**met, bed**	ɔː	**call, four**	əʊ	**go, home**
ə	**away, cinema**	ʊ	**put, could**	ɔɪ	**boy, join**
ɜː	**turn, learn**	uː	**blue, food**	eə	**where, air**
				ɪə	**near, here**
				ʊə	**poor, tour**

Activity – I **(PAIR WORK)**

Listening, writing and speaking. (TPS)

Two alternate words of similar sound are given in the following sentence. Use the appropriate word of the two:

1. Raju wants to boy/buy a car.
2. Sita cuts/cats vegetables.
3. Mohan leaves/lives in Vizag.
4. The children are plying /playing in the park.
5. The servant cleans the floor/flour.

Activity – II

Read the following sentences and identify the short vowel sounds, long vowel sounds and diphthongs in the underlined words and write it in the brackets:

Eg: Rajadhani express trains run at very high speed. (long)

1. I strongly believe that India will win the world cup. ( )
2. Every day I would like to watch English news on the TV ( )
3. Students should read English News Paper every day. ( )
4. Wake up every day at five in the morning. ( )
5. Slow and steady wins the race ( )

Activity – III

Identify and list out the short and long vowels in your Mother tongue and compare with the Vowel sounds of English:

Activity – IV

Refer to a dictionary and observe the pronunciation of these words:

1. father	2.doctor	3.Upon	4.magician	5.make
6. old	7.bat	8.captain	9.field	10.audience

23. Consonant Sounds

The study of sounds is important in any language and more so in English. English has only 26 character where as it has 44 sounds. As such, one to one relationship is not possible between the letter and the sound as in the case of Telugu or Hindi. One letter is made to carry more than one sound. Further, the erratic history of English spelling adds to this confusion. As foreign learners we sometimes do not know how to pronounce a certain spelling - hence the need for the study of sounds. Each sound is represented by a symbol. The chart thus prepared is known as IPA or International Phonetic Alphabet. It consists of Vowels, Consonants and Diphthongs.

Pre- Activity

Fun poem about English pronunciation:

I take it you already know
Of tough and bough and cough and
Dough? Others may stumble, but not you
On hiccough, thorough, slough, and through
Well don't! And now you wish, perhaps,
To learn of less familiar traps Beware of
heard, a dreadful word
That looks like beard but sounds like bird. And dead:
it's said like bed, not bead,
For goodness sake don't call it deed! Watch out for
meat and great and threat
(They rhyme with suite and straight and debt).
A moth is not a moth as in mother
Nor both as in bother, nor broth as in brother,
And here is not a match for there,
Nor dear and fear, for bear and pear
And then there's dose and rose and lose-- Just look
them up--and goose and choose and cork and work
and card and ward And font and front and word and
sword And do and go, then thwart and cart, Come,
come! I've hardly made a start.
A dreadful Language? Why man alive! I learned to
talk it when I was five. And yet to write it, the more I
tried; I hadn't learned it at fifty-five.

From :http://www.etni.org.il/farside/funpoem.htm

Let's Recall:

- "There are **21 consonant letters** in the written alphabet (B, C, D, F, G, H, J, K, L, M, N, P, Q, R, S, T, V, W, X, Y, Z), and there are **24 consonant sounds** in most English accents. . . . **Because of the erratic history of English spelling, there is no neat one-to-one correlation between letters and sounds.**"

  (David Crystal, *The Cambridge Encyclopedia of the English Language*, Cambridge University Press, 2003)

- Let's observe the consonant sounds of IPA

Consonants

p	pen	/pen/	s	so	/səʊ/
b	bad	/bæd/	z	zoo	/zuː/
t	tea	/tiː/	ʃ	shoe	/ʃuː/
d	did	/dɪd/	ʒ	vision	/ˈvɪʒn/
k	cat	/kæt/	h	hat	/hæt/
g	got	/gɒt/	m	man	/mæn/
tʃ	chain	/tʃeɪn/	n	no	/nəʊ/
dʒ	jam	/dʒæm/	ŋ	sing	/sɪŋ/
f	fall	/fɔːl/	l	leg	/leg/
v	van	/væn/	r	red	/red/
θ	thin	/θɪn/	j	yes	/jes/
ð	this	/ðɪs/	w	wet	/wet/

- "In a phonetic description, we distinguish vowels from consonants in terms of how they are articulated in the vocal tract, and the associated patterns of acoustic energy."

  (David Crystal, *How Language Works*, Overlook Press, 2006)

- The consonants are grouped in the following manner:
  1. Friction Consonants : /f/,/v/,/θ/,/ð/,/s/,/z/,/ʃ/,/ʒ/
  2. Stop Consonants: /p/,/b/,/t/,/d/,/k/,/g/,/tʃ/, /dʒ/
  3. Nasal Consonants: /m/,/n/,/ŋ/
  4. Lateral Consonants: /l/
  5. Gliding Consonants: /j/,/w/,/r/

ACTIVITY 1

Pronounce the following words loudly in pairs and underline the consonant sounds:

chain, feel, calf, sting, crack, good, bread, your, bell, plan, tooth, wife, van, jam, tram, buzz, pleasure, whose, nose, young, move, prompt, fresh, jumped.

ACTIVITY 2

(Group Work)

Write the consonant sounds which you have in your mother tongue and mention how many sounds are missing in English or in your mother tongue:

ACTIVITY 3 (Pair Work)

Read out the tongue twisters

Sea Shells by the Sea Shore
She sells sea shells by the seashore.
The shells she sells are surely seashells.
So if she sells shells on the seashore,
I'm sure she sells seashore shells.

Peter Piper

Piper picked a peck of pickled peppers.
'Did Peter Piper pick a peck of pickled peppers?
If Peter Piper picked a peck of pickled peppers, where's
The peck of pickled peppers Peter Piper picked?

Activity 4: Think Pair and share

Pronounce the following words and write down the aspirated sounds.

Aspiration: Short period after the explosion of /p,t,k/ when air leaves the mouth without voice.

go, know, paper, find, call, please, book, tractor, show, see, think, zinc, develop, tuck, these, play, nation, sofa, numb, treasure, hail, shoot, dim, friend, cook, breeze.

Activity 5 (Group work)

Pronounce and learn the difference between the sounds in the following words:

Feel - **p**eel
shoot - **s**uit
Chin - **s**in

Activity 6

pleasure – pressure	harm - arm
Vain - wane	found - pound
Hiss - his	rice - rise

Listen to your teacher and fill in the blanks with appropriate words from the brackets: (observe how sounds help in identifying words and differentiating meaning)

1. I am wearing a ---------- (Lose/loose) shirt.
2. It was a ---------- (Vain/wane) attempt.
3. She dropped a ---------- (Wail/veil) on her face.
4. He loves reading the ---------- (Plays/place) of Shakespeare.
5. Raju bought a ---------- (Rice/rise) bag.

24. Neutralization of Accent

With the expansion of the global market place, a new branch of learning English has come up. This is called **Accent Neutralization**. The main purpose of accent neutralization is to help proficient English speakers speak with a more North American or British accent. The main cause of this trend towards accent neutralization is the demand created by outsourcing.

Outsourcing is the transfer of components or large segments of an organization's internal infrastructure, staff, processes or applications to an external resource. The trend is towards outsourcing to countries where this work can be done at lower cost to the company. Accent neutralization comes into play when the workers speak to North Americans who have difficulties understanding their accents. Of course, the English spoken is excellent. The problem that arises is that many customers have difficulties understanding accents other than their own; hence accent neutralization becomes important for customer satisfaction.

There are huge number of opportunities in the field of BPO, Call Centers of Multinational Companies and Corporate Companies. In the wake of outsourcing, a good communicating employee is of great demand. What the youngsters are expected is to *change their speech patterns a little so as to suit to the clients' needs, good variation of pitch, rhythm and intonation in their voice and some intelligible English.*

India is a multi-lingual country. There is diversity with regard to language they speak. The younger generations have to learn English not merely as a language but as a language that could produce more opportunities in the job market. Hence they are supposed to:

a. Be more confident and effective,
b. Be more fluent and communicative,
c. Engage in extensive conversations, telephone calls,
d. Enhance their inter personal skills for more professional opportunities,
e. Change their regional accents to increase job opportunities.

How to speak with neutral accent?

- Develop good listening skills:

- Frequently listen to language spoken by native speakers and repeat them.
- Record some conversations, news bulletins, movies and listen to them over and over again so that you could be in touch with them. After a few listening sessions, try to repeat the same. Watch movies; listen to music, audio clips, news and presentations.

- Control your rate of speech to get the correct intonation and rhythm of language: Don't be neither too fast nor too slow. Be moderate in your speech rate.
- Use your dictionary:
  - Familiarize yourself with the phonetic sounds (symbols) used for different words in the dictionary and look up the correct pronunciation. This method helps in neutralizing your accent tremendously.
  - Make a list of commonly used words that are difficult to pronounce. Get the correct pronunciation of these words from the dictionary and practice until you get it into your mind.
- Record your own voice and listen to it again for pronunciation mistakes.
- Work on how to pronounce the sounds. Mostly sounds play vital role for accent variation.
- Practice stress both at word level and sentence level. Be aware of your intonation.
- Practice the language sincerely. Get a likeminded partner and work in pairs. Don't hesitate to use English before anybody.
- Try imitating news readers:
  - We learn more by imitation than anything else. In most news channels we find regular readers of news who appear every day. Hence it is advisable to pick up one such, and imitate him/her.
  - Believe that only by developing receptive skills such as listening and reading, we can produce speech or writing.

- Try learning those sounds which are not there in your mother tongue.
  - Say for example vowel sounds like /æ/, /ə/, /ɜ:/. Practice them with perfection. Similarly don't use the long form of the vowel sound /e/, because it is not there in English. Adopt its alternative /eɪ/. Learn the differences between diphthongs like: /aɪ/, /eɪ/ and /əo/, /ao/ and put them to proper use.
  - Again, practice how the suffix "-er", "-re" or "-or" is pronounced in words like "teacher, doctor, mere etc".
  - See how "-mn" is pronounced in words like "column, damn etc".
  - Practice how "ps/kn/wr" is pronounced in words like "psychology, psalm, knock, know, write, wrong" etc.
  - Learn how the following letters are pronounced:
    - "b" in words like 'doubt', 'tomb', 'bomb'
    - "ch" in words like 'chemistry', 'champagne,' 'chandelier', 'church'
    - "v" and "w" in words like 'van', 'woman'
    - "gh" in words like 'rough', 'cough', 'enough'
    - "th" in words like 'thief', 'though'

Consult your English teacher with regard to the intricacies in pronunciation of words.

A. **Neutral English**: It means an English language which can be used uniformly in any country across the world. This does not mean that it has greater merit than any English dialect spoken either in Britain or any country. It is also a dialect, but *one without any regionalisms*. It is, however, the dialect that is used by trained speakers for public usage. The way we speak English regionally is part of our personal identity. It is something that should be used in our everyday speech. However, when we are speaking or performing in a public forum, neutral English should be used, so as to erase regional barriers and communicate effectively with the most people. – (Adopted from *Kathryn La Bouff- author of 'Singing and Communicating English'.)*

'A CCA (Call Center Associate) would have to be a good listener and cultivate a neutral accent'.

The stress now is on a neutral accent that can be understood globally.

Voice and accent training: The objective of voice and accent training is to improve the speech and diction of the students and help them develop a 'global, neutral accent'. A neutral accent is important, as we would be interacting with a global customer base. *A heavy regional accent may hinder comprehension.* Neutral accent' is the diction devoid of mother tongue influence. It is a primary requirement. Having neutral accent allows an employee the flexibility of switching from an American client to a British one and vice-versa. Accent neutralization means achieving an accent that is 'neutral' and therefore understandable to a global audience. ...

25. Change of Speech Patterns

Accent changes from language to language, place to place and from person to person. Normally it is the accent that creates difficulties in understanding communication. People with strong accent are normally asked to repeat themselves. So, one must be able to message clearly, effectively and with confidence.

For clarity and effectiveness we are supposed to be in touch with reasonably good grammar (for error free English), vocabulary, basic sentence structures and their formation etc. To build up confidence we need to be practicing role plays, participating in group discussions, conversations, debates, seminars, workshops, mock interviews and JAMs. With regard to pronunciation, the speech patterns that affect accent are:

1. Pronunciation of sounds,
2. Use of stress (both for words and sentences),
3. Use of intonation and rhythm.

Pronunciation is one area that the younger generations should certainly be good. It is neither the British accent nor the American accent that they have to be thorough with. The Indian students have to develop some reasonably good pronunciation skills.

(Refer to Listening and speaking Part 2 for exercises; Hour – 47 for theory and hour 48 for practice from text. Use the CD for exercises)

VOICE-BASED EFFICIENCY

26. Making Polite Requests

Read the following dialogues in pairs and practice them:

A : Excuse me sir, could you please give me your pen for a moment?
B : I am really sorry. It doesn't write well.
A : Ok, it's all right. (Turning to another man) sir, could I have your pen for a while please?
C : Sure. Here it is.
A : Very kind of you sir, thank you.
C : Please don't mention it.

Customer : Excuse me. I am not able to take out any money. Can you check the ATM machine?
Attendant : Sure, could you just step aside? Let me take a look at it.
Customer : Please come.
Attendant : oh! It seems to be alright. Can you insert your card and try again?
Customer : Ok. Let me try. There it goes in. It has accepted my card this time. Thank you.
Attendant : You are welcome.

Useful phrases:

Excuse me, could you please……. (Mention the favor)
e.g.: Could you please hold my glasses for a while?
Would you mind (doing)……?
e.g.: Would you mind shutting the window? It's raining.
Would you please ……?
e.g.: Would you please allow us in?

27. Asking for and giving Permissions

Read the following dialogues in pairs and practice them:

A : Excuse me, sir, would you please open the door for me? B : Why not? It's a pleasure. A : Very kind of you. Thank you really. It is very hot today. B : True. Can I take some water from your bottle? A : Sure. Can I have the magazine for a while? B : No. I am sorry. I haven't finished reading it. You can get it as soon as I have finished it. A : Oh, thank you.	A : Good morning. B : Good morning. What can I do for you? A : Can I use the reading room? B : Certainly. A : Thank you. I would like to refer to the encyclopedia. Could I do that now? B : I am afraid you can't. The reference section is not for the students. A : Is it? Ok, no problem. Thank you.

Useful phrases for asking for permission:

Excuse me, could/can I .....?
e.g.: Could I keep my luggage here?
Can I bring my son also to the party?
Would it be possible for you to ...?
e.g.: Would it be possible for you to type these letters by 2 o'clock in the night?
Do you mind .....?
e.g.: Do you mind answering this puzzle?

Useful phrases for giving permission: Yes/of course
I have no problem.
By all means/sure/certainly/
Why not? / go ahead/
No problem/with pleasure etc

Useful phrases for refusing permission: Sorry, it's not possible.
I can't say/No, you may not/
I can't/this is just impossible etc

28. Offering, Accepting or Denying Help

Read the following dialogues in pairs and practice them:

A : It's very cold tonight. B : Indeed. Shall I shut the windows? A : That would be nice. B : Why don't you wear a sweater? A : Oh, I have forgotten to bring mine. In fact I did not really expect it to be so cold. B : I can give you one if you don't mind. I have one more in my suitcase. A : That's very kind of you. B : How about a cup of coffee now? A : No, I am sorry. Thank you for the offer.	A : Good morning. Can I help you? B : Do you issue traveler's cheques here? A : Yes. We do. Would you like to buy some? B : Yes, please. A : Please fill in one of these forms and give it to me. Would you like me to fill it for you? B : Please, if you don't mind. See, I forgot my glasses at home. I need assistance. A : NO problem, please give the form to me. B : Thank you, here it is.

Useful phrases for offering help:

May I help you? / Would you like me to help you? /
What can I do for you? Etc

Useful phrases to accept an offer:

I am glad.../you are most kind.... /that is very kind of you.../
Thank you so much../very nice of you.../I am really thankful if you .... Etc.

Useful phrases to say 'no' to offer:

Thank you very much for your kindness, but.....
I am sorry.... /
Please don't trouble yourself.../no please... /no thanks.

29. Asking for and Giving Directions

Read the following dialogues in pairs and practice them:

P : Would you please show me the way to post office? Q : Which post office? P : The main post office. P : Now you are in Railpet main road. Go straight like this, and take the first left lane. You see the main post office. P : Thank you sir. Q : Welcome.	M : Could you tell me how to prepare a cup of tea? N : Why not? It is so simple. Take a bowl of water. Put it on the stove and boil for ten minutes. M : Then? N : When water is boiling add three or four spoons full of tea powder. Allow it to boil for some more time. M : What next? N : Add milk in it and sugar also sufficiently. Add some crushed ginger or cardamom for flavor. Remove the bowl from the stove and filter the tea. You have your tea ready. M : Is it so simple? N : Yes.

Useful phrases for asking directions:

How do I get to....?

What is the best way to .....?

Could you tell me...?

How do I find .... ?

Will you please guide me to ....?

Would you please tell me where....?

Can you show me ...?

Could you show me .....? /

How far is .....?

Useful phrases for giving instructions:

Go straight.... / turn back...

Take your left..... / take the first road.../

Take a few steps forward.../

Begin instructions with action verbs like put/keep/add/pour/repeat/boil/cook/allow... etc

Read the following passage for recipe of mango juice. Give instructions:

"If you want to beat the heat in summer try some cool mango juice. It is simple, easy to make, and refreshing".

The following are ingredients:

One large can of mango pulp.
One tea-spoon of powdered cardamom or cinnamon.
Half a cup of powdered sugar Water.

Use these action verbs and write instructions:

Blend----------

Mix ----------

Chill, ----------

Pour----------

Serve----------

30. Extending Invitations

Read the following dialogues in pairs and practise them:

A : I have two tickets for the charity show. Would you like to join me? B : Where is it? A : At the Town hall. B : At what time? A : Half past six this evening. B : I wish I could, but we have a party at Geetha's residency till seven. Thanks a lot for inviting me. A : It's ok. Go ahead.	M : We thought we would spend the evening at the Paradise. N : I am also ready. Could I know what we are going to do there? M : Why not? We will play Table Tennis at the cellar. We may have cards too. Then at 9 we have dinner. N : I won't say no. I will be with you in ten minutes.

Useful phrases for inviting:

Could I now invite....?

I would like to invite Mr. ....

May I now call upon Sri...

I am glad to invite Hon'ble.....

Would I now invite.....

31. Expressing Sympathy

Read the following dialogues in pairs and practise them:

X : Hello! Rahim, How did you fare in the exams? Y : I thought I had done well. X : Has anything gone wrong? Y : This morning I came to know that I have got only a second class. I was expecting a first class. X : Hard luck. But don't lose heart. You can make it up next time. Y : I hope so.	M : Good morning, Suresh. How are you? N : Fine. Thank you. How are you? M : I had some misfortune recently. I lost my job. The company fired several people including me. N : That's terrible. But a man of your talent should find another job very soon. M : I am trying for something. N : I hope you will succeed. M : Thank you.

Useful phrases:

I am sorry/I am sorry to learn that…

It's really painful…

I am deeply upset…..

I could understand how you feel….

You have my deepest sympathy...

My heart goes with you… etc

I hope that things will go better soon.

When I heard it I could not believe my ears. I am really sorry for you.

32. Agreeing and Disagreeing

Positive Agreement	Negative Agreement/disagreement
A : I think we need more time to work on it. B : You are right.	A : I don't have enough money to spend on it B : Neither do I have.
A : Today the weather is too hot. What do you say? B : Yes. It is really hot.	A : The teacher is quite dissatisfied with you. B : Why? I have done nothing. A : Your home work has too many errors. B : No. I have taken my brother's help.
A : Drinking is a very bad habit. B : I too think so. It is injurious to health. A : Certainly. Many people get their liver badly affected with excess drinking.	A : Feel responsible towards this project. B : Why should I alone? A : You are the team leader. B : So what? Every one of you is also equally responsible.

Useful phrases for Agreement:

- I agree/so do I/me too
- I agree completely (with what you say).
- That's just/exactly what I think/believe.
- In my opinion, you are right /correct/that is right.
- That's my opinion, too.
- I couldn't agree more.
- There's no doubt about it.
- Absolutely correct.
- I am also of the same opinion

Useful phrases polite disagreement:

- I don't think so
- I respect your opinion, but I think...
- I'm not sure I can agree with what you say about...
- I understand what you're saying but...
- You could be right, but...
- But I thought...
- I can't totally disagree with you, but....

Note: *for describing qualities of persons we use adjectives. The following are some useful adjectives:*

friendly	helpful	cooperative	Dynamic	Bold	cheerful	civil
clever	courageous	encouraging	Lovable	handsome	hard working	pleasant
simple	rich	broad minded	Sentimental	Sincere	generous	simple
polite	loving	positive minded	kind hearted	Dedicated	ever smiling	nice

33. Making Complaints

Read the following dialogues in pairs and practise them:

Customer: Excuse me, I am sorry to say this. No one seems to attend on table number 16. **Manager:** I am really sorry. I will send someone there at once. Sorry for the inconvenience. **Customer:** Thank you. Please send one soon.	**Officer:** I am sorry to say like this, but you seem to make too many spelling mistakes in the letters. **Typist:** I am really sorry sir. I shall be more careful hereafter. **Officer:** You ought to be.	**Chairman:** well, gentleman, I am not at all satisfied with the way you handled the dispute. **Executive:** But sir, we tried our best to convince the complainant. **Chairman:** That just won't do. You should have taken union leaders into confidence. Why didn't you try that? **Executive:** We did sir, but they were not ready for talks. **Chairman:** Do something wise.

Useful phrases for making complaints:

I am sorry to say like this, but .....

I think you might have forgotten to.....

It is a pity. I did not expect it from you....

READING SKILLS

34. Synonyms

Synonyms are different words with identical or at least similar meanings. Synonyms are not mutually replaceable. They carry shades of meaning. A standard dictionary with usage alone can guide us regarding the correct usage of different synonyms. Given below is a list of synonyms. Go through them carefully:

LIST OF SYNONYMS

Nouns:

1. Anxiety – worry, trouble, uneasiness
2. Assent – agreement, consent, concord
3. Aversion- hatred, dislike, unwillingness
4. Ability—capability, capacity, talent
5. Adversary- opponent, enemy, rival
6. Agent—Instrument, deputy, assistant
7. Aim – determination, intension, goal
8. Anger, fury, rage, wrath
9. Behavior- conduct, manners, demeanor
10. Disaster-misfortune, calamity
11. Discourse- speech, conversation, talk
12. Danger- peril, risk, loss
13. Doubt-uncertainty, dilemma, stalemate
14. Effort-attempt, struggle, endeavor
15. Esteem – estimate, value, respect
16. Evidence- witness, proof
17. Education- learning, training, schooling
18. End- result, goal
19. Enthusiasm- zeal, eagerness, curiosity
20. Fear- anxiety, dread, horror, awe
21. Fame-glory, reputation, popularity
22. Grief – sorrow, woe, pain
23. Habit – custom, practice, usage
24. Harmony- concord, agreement
25. Happiness-delight, joy, gladness
26. Harm- injury, hurt, damage
27. Help- aid, assistance, guidance
28. Honesty- purity, integrity
29. Imposter- cheat, rogue, knave
30. Insolvent – debtor defaulter
31. Invasion- raid, intrusion, attack
32. Judgment- verdict, decree, doom
33. Justice- Fairplay, judgment, verdict
34. Knowledge- learning, wisdom
35. Liberty – freedom, independence, privilege
35. Mercy- pity, compassion, kindness
36. Memory - remembrance, recollection
37. Modesty- meekness, humility
38. Pardon- forgiveness, mercy, kindness
39. Poverty- penury, lack, need
40. Patience- tolerance, endurance, perseverance
41. Pride – arrogance, conceit
42. Pretence- affectation, show, pose
43. Quarrel- dispute, conflict, feud
44. Progress- improvement, development
45. Rule- authority, law, principle
46. Selection- choice, option, election
47. Subsidy- help, support, assistance
48. Shelter- cover, refuge, asylum
49. Thrift- saving, economy
50. Utility-benefit, usefulness, service
51. Villain- rogue, miscreant,
52. Vice- offence, evil, wickedness
53. Virtue- honesty, sincerity, truth
54. Wisdom- insight, perception, glimpse
55. Worship- adoration, reverence
56. Wrong- mistake, injustice, error
57. Zest- flavor, enjoyment,
58. Zeal - enthusiasm, energy, force

Exercise for Practice:

Write adjective forms of the flowing words and find out their meanings at home:

1. Doubt _____, _____
2. Honesty _____, _____
3. Patience _____, _____
4. Progress_____, _____
5. Mercy _____, _____
6. Enthusiasm _____, _____
7. Wisdom _____, _____
8. Poverty _____, _____
9. Help _____, _____
10. Thrifty _____, _____

Adjectives:

1. Abundant – plentiful, exuberant, rich
2. Accurate – exact, true, precise
3. Beautiful – charming, fair, handsome
4. Benevolent – generous, charitable
5. Bold – daring, courageous, immodest, brave
6. Bright – shining, cheerful, radiant
7. Bad – mean unfair, wicked
8. Busy – active, industrious, diligent
9. Capricious – variable, shifting, wavering
10. Candid – impartial, straight, frank
11. Clever – able, talented, intelligent
12. Conspicuous – famous, remarkable
13. Cordial – warm, friendly, agreeable
14. Calm – peaceful, quiet, serene
15. Correct – exact, precise, right
16. Dangerous – perilous, adventurous
17. Difficult – laborious, hard
18. Deliberate – cautious, intentional
19. Dark – dim, gloomy, dull
20. Eager – alert, brisk, anxious
21. Enormous – gigantic, huge, vast
22. Eternal – interminable, everlasting
23. Extravagant – excessive, lavish, wild
24. Famous – eminent, glorious
25. Firm – steadfast, constant, strong
26. Formidable – frightful, terrible
27. Frugal – thrifty, economical, sparing
28. Generous – gracious, covetous
29. Glad - cheerful, happy, gay
30. Good – right, useful, purposeful
31. Great – large, big, wide
32. Haughty – overbearing, proud
33. Honest – faithful, truthful, sincere
34. Impetuous – violent, vehement
35. Impudent – bold, daring, audacious
36. Important – significant, striking
37. Innocent – pure, spotless, chaste
38. Irregular – disorderly, haphazard
39. Kind – sympathetic, merciful, charitable
40. Lazy – inactive, idle, indolent
41. Laudable – commendable, praiseworthy
42. Last – final, terminal, close
43. Learned - scholarly, intelligent, wise
44. Liberal - generous, charitable
45. Malevolent – malignant, spiteful, malicious
46. Melodious – sweet, musical
47. Monotonous – boring, dull, uniform
48. Mischievous – harmful, damaging
49. Monstrous – abnormal, fearful, horrible
50. Mad – insane, senseless
51. Majestic – grand, dignified, top
52. Many – several, numerous, plenty
53. Mysterious – unknown, strange
54. Necessary – needed, unavoidable
55. Natural – normal, original, spontaneous
56. New – novel, fresh, strange
57. Nice – subtle, obedient, dutiful
58. Obscure – lowly, dark, indistinct

59. Obstinate – headstrong, arrogant, rash
60. Old - aged, ripe, ancient
61. Open – plain, free, frank
62. Polite – civil, refined, elegant
63. Prudent – cautious, thoughtful, judicious
64. Palatable – tasty, delicious
65. Passive – inactive, lazy, lethargic
66. Perfect – entire, correct, right
67. Permanent – constant, lasting, unchanging
68. Pleasant- happy, joyful, agreeable
69. Popular – familiar, famous, notable
70. Quick – prompt, ready, swift
71. Rude – rough, violent, impolite
72. Royal – unique, majestic
73. Rational – reasonable, sensible, practical
74. Reliable – dependable, trustworthy
75. Rapid – hurried, fast, swift
76. Real – true, genuine
77. Rigid – stiff, firm, strict
78. Regular – systematic, symmetrical
79. Responsible – answerable, dependable
80. Safe – unharmed, secure
81. Scanty – short, meager, insufficient
82. Severe – harsh, rigorous, strict
83. Skillful – talented, clever, adroit
84. Sluggish – inert, idle, torpid
85. Small – puny, tiny, trivial
86. Smooth – easy, polished
87. Spacious – ample, abundant, large
88. Sullen – ill-tempered, surly
89. Sacred – consecrated, holy, solemn
90. Sick – ill, unwell, ailing
91. Silent – reticent, still
92. Sincere – frank, clear, open
93. Slow – dull, uninteresting, monotonous
94. Strong – healthy, sound
95. Stupid – dull, idiotic, foolish
96. Suitable – fit, right, proper
97. Temporary – brief, fleeting, provisional
98. Thankful - grateful, agreeable
99. Timid – cowardly, bashful, shy
100. True – loyal, faithful, honest
101. Tactful – considerate, skillful, diplomatic
102. Triumphant – victorious, successful
103. Uncivil - impolite, rude, rash
104. Unhappy – sad, forlorn, sorrowful
105. Usual – customary, habitual, traditional
106. Vacant – blank, empty, unoccupied
107. Valid – sound, reasonable, good
108. Virtuous – blameless, meritorious
109. Voracious – greedy, ravenous, insatiable
110. Weak – dim, faint, feeble, frail
111. Welcome – agreeable, pleasing, happy
112. Wet – moist, damp
113. Wicked – bad, vicious, villainous

Exercises for practice:

Write noun forms of the following words and find out their meanings:

1. Valid _____, _____
2. Silent _____, _____
3. Responsible _____, _____
4. Melodious _____, _____
5. Kind _____, _____
6. Vacant _____, _____
7. Difficult _____, _____
8. Sacred _____, _____
9. Innocent _____, _____
10. Accurate _____, _____

VERBS:

1. Abandon – leave, forsake, resign
2. Abate – diminish, decline, reduce
3. Abbreviate – reduce, shorten, condense
4. Abhor – detest, loath, hate, abominate
5. Abolish – annul, destroy, eradicate
5. Abstain – cease, refrain, desist
6. Accomplish – achieve, execute, perform
7. Accuse – question, censure, reprimand
8. Allure – entice, attract, ensnare, entrap
9. Amend – better, improve, correct
10. Appease – pacify, soothe, assuage
11. Absorb – assimilate, consume, digest
12. Acquire – obtain, secure, procure
13. Attack – charge, assault, invade
14. Choose – select, opt, prefer, pick
15. Confuse – mix, disorder, disarrange
16. Clean – purify, wash, urge
17. Decide – determine, resolve, conclude
18. Decrease – abate, lessen, diminish
19. Deny – refuse, contradict, negate
19. Differ – disagree, vary, contradict
21. Elevate – raise, promote, exhilarate
22. Emancipate – free, deliver, liberate
23. Encroach – intrude, trespass, invade
24. Endure – suffer, bear, continue
25. Entertain – cheer, treat, amuse
26. Eradicate – root out, end, abolish
27. Exaggerate – amplify, magnify,
28. Fight – contest, brawl, feud
29. Forbid – prohibit, ban, debar
30. Furnish – provide, supply, equip
31. Hinder – delay, impede, prevent,
32. Hate – dislike, detest, abhor, loathe
33. Imitate – copy, follow, counterfeit
34. Impair – lessen, decrease, reduce
35. Irritate – vex, worry, trouble, annoy
36. Like – love, long, desire
37. Listen – hear, perceive, grasp
38. Mitigate – calm, soothe, quieten
39. Negate – contradict, oppose
40. Omit – neglect, overlook, drop
41. Object – criticize, oppose, obstruct
42. Adorn – embellish, decorate, garnish
43. Banish – exile, expatriate,
44. Confuse – perplex, bewilder, baffle
45. Deceive – betray, delude, dupe, cheat
46. Elucidate – explain, illustrate, comment
47. Foment- excite, stimulate
48. Forbid – repulse, repel
49. Investigate – explore, examine, enquire
50. Meditate – ruminate, think, reflect, muse, ponder, contemplate, consider, cogitate
51. Repose – rest, ease, relax
52. Resurrect – regenerate, raise, revive,
53. Retain - hold, grab, reserve, restore, replace, reestablish, reinstate
54. Resign – relinquish, surrender, quit
55. Ruin – destroy, wreck, undo, collapse
56. Scatter – disperse, diffuse, strew
57. Shiver – shudder, shake, quiver
58. Torment – torture, harass, persecute, vex, oppress, afflict, tyrannize, tantalize
59. Tread – crush, trample, override
60. Tremor – vibrate, pulsate, palpitate,
61. Vanish – disappear, evanesce

Exercise for practice:

Write the noun forms of the following words and find out their meanings:

1. Irritate _____, _____
2. Confuse _____, _____
3. Abolish _____, _____
4. Absorb _____, _____
5. Meditate _____, _____
6. Resign _____, _____
7. Emancipate _____, _____
8. Decide _____, _____
9. Abbreviate _____, _____
10. Deny _____, _____

Find out the synonyms of the following words:

1. Attain _____
2. Lament _____
3. Follow _____
4. Simple _____
5. Buy _____
6. Dangerous _____
7. Reward _____
8. Connect _____
9. Mighty _____
10. Master _____
11. Modern _____
12. Damp _____
13. Oral _____
14. Begin _____
15. Stupid _____
16. Gain _____
17. Sharp _____
18. Jealous _____
19. Ultimate _____
20. Elaborate _____

35. Antonyms

Antonyms are words that have opposite (or nearly opposite) meanings. Given below is a list of antonyms. Go through them carefully:

Nouns:

Attack (offence) x defense
Arrival x departure
Affluence x poverty
Acceptance x rejection, refusal
Admiration x condemnation
Activity x passivity
Adversity x prosperity
Absence x presence
Ascent x descent
Attraction x repulsion
Armament x disarmament
Accessible x inaccessible
Body x soul
Beauty x ugliness
Barbarism x civilization
Brutality x humanity
Beginning x end
Confidence x diffidence, distrust
Credit x discredit, debit
Creation x destruction
Classicism x romanticism
Confession x denial
Cause x effect
Dwarf x giant
Death x birth, life
Diligence x idleness, indolence
Danger x safety
Destruction x construction
Economy x extravagance, prodigality
Ease x difficulty
Exterior x interior
Elevation x depression
Enthusiasm x indifference
Egoism x altruism
Freedom (Liberty) x bondage (Slavery)
Ability x inability, incompetence
Ancestor x descendant
Accord x discord, disagreement
Arrangement x disarrangement
Acquittal x conviction
Acquisition x loss
Assent x dissent
Aristocracy x democracy
Analysis x synthesis
Association x disassociation
Absurdity x reasonableness, rationality
Belief x doubt
Bravery x timidity, cowardice
Bottom x top, summit
Boon x bane, curse
Bliss x misery
Cheerfulness x dejection, gloom
Concord x discord
Course x timidity
Care x negligence
Consent x dissent
Complication x simplification
Delay x hurry, haste
Darkness x light
Delight x depression, sorrow, displeasure
Deficit x surplus
Despair x hope
Distress x comfort
Entrance x exit
Examiner x examinee
Enmity x friendship
Ebb x flow
Enemy (foe) x friend
Front x rear
Frankness x reservedness

Fact x fiction, fancy
Favor x frown
Failure x success, victory
Foreigner x native
Gain x loss
Guest x host
Heroine x vamp
Haste x leisure, delay
Ignorance x knowledge
Imagination x reality
Landlord x tenant
Lad x lass
Malice x good will
Mistress x maid
Night x day
Obligation x claim
Pleasure x pain
Punishment x reward
Profit x loss
Prudence x recklessness
Poverty x affluence, richness
Petulance x amiability
Propulsion x repression
Patriotism X cosmopolitanism
Paradise x hell
Persist x relinquish
Relief x aggravation
Ruler x ruled, subject
Smile x frown
Saint x sinner
Sin x virtue
Sympathy x antipathy
Theory x practice
Time x eternity
Use x abuse, disuse, misuse
Volunteer x conscript
Want x abundance
Wisdom x folly
Word x deed
Zeal x indifference

Futility x utility
Faith x doubt
Folly x wisdom
Growth x decline, decay
Gratitude x thanklessness
Glory x shame
Hero x villain
Heaven x earth, hell
Insufficiency x plentitude
Joy x sorrow, sadness
Love x hatred
Lenience x severity
Melancholy x gaiety
Melody x cacophony
Negate x accept
Original x copy, duplicate
Plenty x scarcity
Peace x war
Permission x prohibition
Philanthropist x misanthropist
Prospect x retrospect
Pros (prospects) x Cons (consequences)
Prodigality x parsimony
Pride x humility, politeness
Passion x coolness
Retreat x advance
Roar x whisper
Recovery x loss
Storm x calm
Safety x danger
Solid x liquid
Silence x noise
Tragedy x comedy
Union x Division, disunion
vice x virtue
Whole x part
Work x idleness, rest
Warmth x coolness
Yield x resistance
Zest x dislike

Find out the adjective forms of the following words and fill in the blanks:

1. Diligence _____, _____
2. Brutality _____, _____
3. Ignorance _____, _____
4. Wisdom _____, _____
5. Sympathy _____, _____
6. Tragedy _____, _____
7. Zeal _____, _____
8. Saint _____, _____
9. Profit _____, _____
10. Silence _____, _____

Adjectives:

Absent x present
All x none
Anterior x posterior
Authentic x spurious
Aristocratic x democratic
Ancient x modern
Ample x meager, scanty
Awkward x graceful
Accustomed x unusual
Barren x fertile
Bold (brave) x cowardly, timid
Benevolent x malevolent
Blustering x humble, gentle
Bright x dull
Bare x noble
Cheap x dear
Coarse x fine
Conceited x modest, sincere
Conservative x traditional
Complex x simple
Civilized x savage
Compassionate x merciless
Cooked x raw
Cordial x cold, frigid
Clothed x naked
Comic x tragic, serious
Common x rare
Dead x alive
Domestic x wild, tamed
Dynamic x static
Diligent x lazy
Dangerous x secure, safe
Dubious x certain
Active x passive
Artificial x natural
Absurd x rational
Alert x inert, absentminded
Affirmative x negative
Attractive x repulsive
Arrogant x humble
Abstract x concrete
Absolute x limited, relative
Bitter x sweet
Broad x narrow
Brutal x humane, kind
Blunt x sharp
Beneficial x injurious
Boisterous x quiet, calm
Clever x stupid
Cool x warm
Christian x pagan
Cheerful x gloomy, depressed
Cruel x kind, gentle
Cautious x reckless
Centrifugal x centripetal
Chaste x impure
Conceive x diffuse
Callous x soft, tender
Celebrated x obscure
Convex x concave
Deep x shallow
Docile x stubborn
Diffident x confident
Different x similar
Dexterous x unskilled, awkward
Extravagant x economical

Expeditious x dilatory
Exotic x indigenous, native
External x internal
Energetic x enervated, weak
Explicit x implicit
Fresh x stale
Friendly x hostile
Firm x unsteady, infirm
Fickle x constant, firm, steadfast
Flexible x rigid, stiff
Fanciful x practical
Fictitious x genuine, true, spurious
Fabulous x actual
Guilty x innocent
General x particular
Hereditary x acquired
Humble x proud, arrogant
Immaculate x solid, spotted
Junior x senior
Jocund x cheerless
Latest x earliest
Languid x energetic, vigorous
Liberal x orthodox
Many x few
Morbid x healthy
Material x spiritual
Mighty x weak
Obstinate x yielding, submissive
Ominous x auspicious
Optional x compulsory
Ornamental (decorative) x simple
Pure x adulterated
Precious x cheap, worthless
Pompous x simple
Quixotic (foolish) x realistic
Rash x balanced, cautious
Rapid x slow, tardy
Severe x mild
Sprightly x dull
Secret x public, open
Stationary x moving

Early x late
Exoteric x esoteric
Earthly x heavenly, celestial
Exceptional x ordinary
Fair x unfair, foul
Final x preliminary, initial
Far x near
Fine x coarse
Fat x thin, slim
Familiar x strange
Ferocious x mild, gentle
Frank x reserved
Famous x obscure, notorious
Great x petty, common, ordinary
Generous x stingy, mean
Hollow x solid
Indolent x diligent, inactive
Invariable x fluctuating
Joint x separate
Literal x figurative
Loose x tight
Latent x apparent
Mad x sane
Miserly x generous
Masculine x feminine
Miraculous x simple, ordinary
Nice x nasty
Oral x written
Oscillating x steady, firm
Odd x even
Opaque x transparent
Progressive x retrogressive, regressive
Plain x complex, showy
Pathetic x joyous
Secular x religious
Romantic x prosaic
Ruthless x humane
Sensible x callous
Sublime x ridiculous
Sober x excited, drunk
Sweet x bitter, sour

Strict x lenient
Straight x crooked, curved
Tame x wild
Transient x lasting, permanent
Tedious x lively, interesting
Tractable x refractory
Violent x gentle
Vivacious x idle, languid
Vindictive (revengeful) x forgiving
Vigilant x careless
Woeful x cheerful
Wild x civilized
Sacred x profane, unholy
Superior x inferior
Thrifty x extravagant
Tainted x pure
Tranquil x agitated, noisy
Temporal (worldly) x spiritual
Voluntary x compulsory
Vain x modest
Vulgar x refined
Vital x immaterial
Winsome x unattractive

Find out the noun forms of the following words and fill in the blanks:

1. Violence _____, _____
2. Hereditary _____, _____
5. Fickle _____, _____
7. Liberal _____, _____
9. Violent _____, _____
2. Severe _____, _____
4. Superior _____, _____
6. Generous _____, _____
8. Sweet _____, _____
10. Guilty _____, _____

Verbs:

Abhor x like, favour
Acquit x convict, condemn
Assemble x disperse
Accuse x defend
Advance x retreat, return
Allow x forbid
Alleviate x aggravate
Borrow x lend
Compare x contrast
Confess x deny
Choose x reject
Converge x diverge
Consolidate x weaken, fragment
Defame x praise
Emancipate x enslave
Exonerate x implicate
Elevate x degrade, depress
Entrance x closure
Fail x pass, succeed
Follow x lead
Grant x reject
Accept (Adopt) x reject, refuse
Agree x differ
Affirm x deny
Admire x condemn, dislike
Appreciate x depreciate
Accumulate x scatter
Beautify x disfigure
Bless x curse
Conceal (hide) x reveal
Contract (compress) x expand
Collect x dispose, distribute
Censure x praise
Diminish x increase, enhance
Expedite x impede, slow
Enrich x impoverish
Enjoy x suffer
Exult x lament
Enemy x friend
Fatigue x refresh
Gather x scatter
Help x hinder

Hurt	x	heal
Hide	x	seek
Heaven	x	hell, earth
Insert	x	excerpt
Inhale	x	exhale
Join	x	separate
Lessen	x	enlarge, increase
Magnify	x	reduce
Oppose	x	yield
Persuade	x	dissuade
Rejoice	x	lament
Relieve	x	join
Relish	x	dislike
Rise	x	fall, set
Record	x	obliterate
Sink	x	float
Strengthen	x	weaken
Teach	x	learn
Wake	x	sleep
Hit	x	miss
Harass	x	comfort, assist
Hamper	x	allow
Inherit	x	bequeath
Illuminate	x	darken
Laugh	x	weep
Make	x	mar
Open	x	close, shut
Perceive	x	avoid
Precede	x	succeed
Rectify	x	falsify
Retreat	x	forward
Repress	x	encourage
Resolve	x	hesitate
Resist	x	submit, yield
Solidify	x	liquefy
Thrive	x	decline
Worry	x	comfort

Find out the noun forms of the following words and fill in the blanks:

1. Strengthen _____, _____
2. Illuminate _____, _____
2. Magnify _____, _____
4. Oppose _____, _____
5. Fail _____, _____
6. Compare _____, _____
7. Advance _____, _____
8. Defame _____, _____
9. Perceive _____, _____
10. Agree _____, _____

Find out the antonyms of the following words:

1. Miser _____
2. Death _____
3. Zenith _____
4. Valediction _____
5. Attend _____
6. Sinner _____
7. Royal _____
8. Bitter _____
9. Confirm _____
10. Generosity _____
11. Marriage _____
12. Several _____
13. Permit _____
14. Kind _____
15. Narrow _____
16. Refined _____
17. Steep _____
18. Moist _____
19. Foolish _____
20. Body _____
21. Poverty _____
22. Love _____
23. Queer _____
24. Strength _____
25. Timid _____
26. Useless _____
27. Mother _____
28. Arrival _____
29. Truth _____
30. Dim _____
31. Opaque _____
32. Ruin _____
33. Junior _____
34. Beaux _____
35. Prevent _____
36. Handsome _____
37. Forget _____
38. Winner _____
39. Holy _____
40. Resist _____

36. Idiomatic Expressions

1. Once in a blue moon: *a very rare event*
2. To mind one's own business: *to attend to one's own without interfering with others work*
3. In the nick of time: *exactly at the right time*
4. To blow one's own trumpet: *to sing one's own praises*
5. A bolt from the blue: *a sudden shock*
6. To make a mess of: to get into difficulty
7. In cold blood: *mercilessly*
8. To break the ice: *to break silence or to start conversation*
9. Bread and butter: *livelihood*
10. To come off with flying colors: *to do something successfully*
11. To beat about the bush: *to be not to the point or to say something round about*
12. A bird's eye view: *general view*
13. A cock and bull story: *a false story*
14. To pay somebody in his own coin: *to give a tit for tat or to avenge*
15. To hit the bull's eye: *to hit the target exactly*
16. At one's beck and call: *to be under one's control*
17. To cry over spilt milk: *to regret in vain or uselessly*
18. To be under a cloud: *to be in trouble*
19. To call a spade a spade: *to speak the truth*
20. To make both ends meet: *to live within one's income*
21. Hale and hearty: *in perfect health*
22. To bring somebody to his knees: *to defeat*
23. Jack of all trades: *one who can turn his hand to any job, but is not expert in any*
24. A landslide victory: *a success even beyond expectation*
25. To lose one's face: *to become humiliated*
26. A lion's share: *a major part of*
27. Lame excuse: *baseless excuse*
28. Apple of discord: *a cause of envy or discord*
29. Arm chair theory: *an impracticable theory*
30. All and sundry: *every body*
31. ABC: *the first things of a subject/matter*
32. Acid test: *critical examination*
33. Add fuel to fire: *to increase/further the anger*
34. Much ado about nothing: *to create fuss without cause or reason*
35. To take airs: *to become proud*
36. Once for all: *finally*
37. Apple of the eye: *something very dear*
38. With open arms: *with hearty welcome*

39. At stone's throw: *very near*
40. At the eleventh hour: *at the very last moment*
41. To lose one's head: *to lose calmness of mind*
42. To lose heart: *to become discouraged*
43. A lame duck: *an inefficient man*
44. To leave no stone unturned: *to do one's best/to make all possible efforts*
45. To kiss the rod: *to submit to punishment*
46. To have a keen eye: *to have sharp vision or insight*
47. Heart and soul: *with complete devotion*
48. Inns and outs: *the whole details of any matter*
49. To hope against the hope: *to continue to hope when there is no sufficient reason*
50. To hold one's head high: *to bear oneself proudly*
51. With a grain of salt: *with reservation or doubt*
52. To take for granted: *to presuppose as certainly true*
53. Hand and glove: *very intimate*
54. To live in fool's paradise: *to be happy on false hopes*
55. To bite the dust: *to die*
56. To go to dogs: *to be ruined*
57. To deliver the goods: *to work perfectly*
58. To fall in line: *to form a queue*
59. To go out of hand: *to miss out*
60. To cut a sorry figure: *to fail miserably*
61. To chew the cud: *to ruminate/to call up to memory*
62. To put an end: *to close something*
63. To catch red handed: *to catch while doing a wrong thing*
64. To chalk out a program: *to prepare a plan of action*
65. To burn one's fingers: *to come to a loss*
66. To turn from bad to worse: *to decline*
67. Stumbling block: *a hurdle*
68. A storm in a tea cup: *an unimportant issue*
69. To lend an arm: *to be willing to help*
70. Yellow journalism: *a bad propaganda through media*
71. Point of view: *opinion*
72. To give warm reception: *to extend a hearty welcome*
73. To be in a tight corner: *to be involved a critical issue*
74. To hold one's tongue: *to mind one's language*
75. To go with the tide: *to follow the situation*
76. Time and tide: *call for immediate action*
77. A thorn in one's flesh: *a serious problem*
78. To skim the cream off: *to extract the essence*
79. Neat and tidy: *very clean*

80. Gentleman of the old school: *a conservative or orthodox man*
81. Sheep that have no Shepherd: *people without a leader*
82. To spin the yarn: *to invent false stories*
83. To rub shoulders with: *to have close relation with*
84. To rule the roost: *to act as a manager of things*
85. To reap the fruits of: *to enjoy the result*
86. To make a mess of: *to spoil*
87. To throw light: *to explain*
88. Man of letters: *a scholar*
89. By hook or by crook: *by any possible method*
90. Hall mark: *main characteristic feature*
91. Ghastly incident: *a horrible incident*
92. To get out of hands: *to go out of control*
93. Hard nut to crack: *difficult issue to solve*
94. Round the clock: *always*
95. Cake walk: *an easy and simple task*
96. Bosom friend: *a very close friend*
97. From cradle to grave: *from birth to death*
98. Between the devil and the deep sea: *between two extreme dangers*
99. Make amends: *rectify*
100. In high spirits: *enthusiastic*

37. One Word Substitutes

1. A person who looks at the bright side of life : Optimist
2. A person who loves mankind : Philanthropist
3. A person believes in the existence of god : Theist
4. A person who sells flowers : Florist
5. A person who compiles dictionaries : Lexicographer
6. A person who studies the evolution of mankind : Anthropologist
7. A person who is new to any profession : Novice
8. A person who runs away from law/justice : Fugitive
9. A person who acts against religion : Heretic (use 'an' before it)
10. A person who is over enthusiastic about religious matters : Fanatic/bigot
11. A person appointed to settle disputes between two parties : Arbitrator
12. A person who collects stamps as a hobby : Philatelist
13. A person who knows several languages well : Linguist
14. A person who speaks many languages : Polyglot
15. A person who hates womankind : Misogynist
16. A person who hates marriage : Misogamist
17. A person who loves others selflessly : Altruist
18. A person who lends money at unfairly high interest : Usurer
19. A person who is unable to repay his debts : Insolvent/Bankrupt
20. A person who does not take any alcoholic drinks : Teetotaller
21. A person who believes in fate : Fatalist
22. A person who loves and collects books : Bibliophile
23. A person who sleep walks : Somnambulist
24. A person who talks during sleep : Somniloquist
25. A person who treats pain and pleasure alike : Stoic
26. A person who enjoys himself in flirting with women : Philanderer
27. A person who works for the welfare of women : Feminist
28. A person who can use his/her both hands equally well : Ambidextrous
29. A person who comes to live permanently in a foreign country: Immigrant
30. A person who is excessively fond of eating and drinking :Epicure
31. A person who drives a motor car of others : Chauffeur
32. A person who is womanish in his habits : Effeminate
33. A person who believes in sexual pleasures : Hedonist
34. A specialist in dealing with diseases of children : Pediatrician
35. a specialist in dealing with diseases of heart : Cardiologist
36. A specialist in dealing with diseases of kidney : Nephrologist
37. A specialist in dealing with diseases of women : Gynaecologist
38. A specialist in dealing with diseases of mind : Psychiatrist

39. A specialist in dealing with diseases of bones and muscles :Orthopaedist
40. A specialist in dealing with the birth of children : Obstetrician
41. One who lives on animal flesh : Carnivorous
42. One who lives on plant food : Herbivorous
43. One who takes food of both animals and plants : Omnivorous
44. The art of elegant speech and writing : Rhetoric
45. A home for the mentally unsound and disabled : Asylum
46. A home for the old people : Infirmary
47. A speech made without any preparation : Extempore
48. A thing/magazine kept in the memory of a person or event: Souvenir
49. A book that contains information on various subjects : Encyclopedia
50. Last performance of an artist before death : Swan - song
51. A pledge given by a prisoner for temporary release : Parole
52. A general vote of the public to decide a question : Referendum
53. The common opinion of the public taken on an issue : Consensus
54. A place where dead bodies are kept : Mortuary
55. A medical examination conducted for dead bodies : Post mortem
56. An exact copy of handwriting or printing : Facsimile
57. A place where the government records are kept : Archives
58. A place where ammunition (weapons) is kept : Arsenal
59. An account published in news paper about the funeral of the dead: Obituary
60. Words inscribed in the memory of dead man on his tomb : Epitaph
61. A remedy for all diseases : Panacea
62. An imaginary land with perfect social order : Utopia
63. A person who offers service selflessly : Volunteer
64. Holding office without any remuneration : Honorary
65. An office with high salary but without work : Sinecure
66. A person who goes on foot : Pedestrian
67. A person who writes in beautiful handwriting : Calligrapher
68. The study of language : Philology
69. The study of the origin of words : Etymology
70. The study of sound and sound systems : Phonetics
71. The study of the meaning of words : Semantics
72. The study of ancient writings : Palaeography
73. The study of coins : Numismatics
74. The act of killing of a race of people (extermination) : Genocide
75. The act of killing oneself : Suicide
76. The act of killing of mother : Matricide
77. The act of killing of one person by the other : Homicide
78. The act of killing of the king : Regicide
79. The act of killing of brother : Fratricide

80. The form of government run by officials : Bureaucracy
81. The form of government run by a few people : Oligarchy
82. The study of birds : Ornithology
83. A collection of poems : Anthology
84. The study of human body : Physiology
85. The government by religious principles : Theocracy
86. The government by one person : Autocracy
87. The government by the king or queen : Monarchy
88. The government by the people of a country : Democracy
89. The government by the rich : Plutocracy
90. The government by the nobles : Aristocracy
91. The absence of a government in a country : Anarchy
92. The right of self government : Autonomy
93. One who eats human flesh : Cannibal
94. A person who is at ease in any part of the world : Cosmopolitan
95. A person who is the centre of attraction : Cynosure
96. One who designs steps and movements in dances : Choreographer
97. One who draws maps : Cartographer
98. Official formality resulting in excessive delay : Red-tapism
99. The act of speaking disrespectfully about god and sacred things: Blasphemy
100. A belief that arises from excessive self-importance : Egoism

38. Reading Skills-I
Skimming and Scanning

There are different styles of reading for different situations. The technique you choose will depend on the purpose for reading. For example, you might be reading either for enjoyment or information, or to complete a task or to explore or review, you might skim a document. If you're searching for information, you might scan for a particular word. You need to adjust your reading speed and technique depending on your purpose.

Skimming is used to quickly identify the main ideas of a text. When you read the newspaper, you're probably not reading it word-by-word. Skimming is done at a speed three to four times faster than normal reading. People often skim when they have lots of material to read in a limited amount of time.

There are many strategies that can be used when skimming a text. Some people read the first and last paragraphs using headings, summarizers and other organizers as they move down the page or screen. You might read the title, subtitles, subheading, and illustrations. Consider reading the first sentence of each paragraph. This technique is useful when you're seeking specific information rather than reading for comprehension. Skimming works well to find dates, names, and places. It can also be used to review graphs, tables, and charts.

How is Skimming done?

Read the title
Read the introduction
Read all the subheadings and think about how they are related
Read the first sentence in each paragraph (last sentence also if needs)
Go back through the text looking for clues like ➢ *Answers for who, what, when, how, why etc* ➢ *Proper nouns* ➢ *Numbers (dates, statistical figures)* ➢ *Adjectives* ➢ *Changes in the font, color, italics, bolded letters etc*
Read the last paragraph

Scanning is another technique you often use when looking up a word in the telephone book or dictionary. You search for key words or ideas. In most cases, you know what you're looking for, so you're concentrating on finding a particular answer. Scanning involves moving your eyes quickly down the page seeking specific words and phrases.

When scanning, look for the author's use of organizers such as *numbers, letters, steps, or the words, first, second, or next*. Look for words that are *bold faced, italicised, or in a different font size, style, or color*.

How is Scanning done?

down your eyes quickly so as to catch the information you want
Don't get distracted by other pieces of information
Run your eyes over several lines at one time
Focus your attention on the information you want

A) Answer the following questions:

1. What is skimming?
2. What is scanning?
3. When do you use skimming?
4. How is scanning helpful?
5. Do you skim or scan initially when you read a newspaper?

Skim, share and write down the headlines of today's newspaper:

39. Reading Skills - II

Reading skills refer to the specific abilities that enable a person to read with independence and interact with the message. Students at the university do a lot of reading unlike in secondary school. Some tips to help in having good reading skills are active reading and styles of reading. **Reading** is a complex cognitive process of decoding symbols in order to construct or derive meaning (reading comprehension). It is a complex interaction between the text and the reader which is shaped by the reader's prior knowledge, experiences, attitude, and language community which is culturally and socially situated. The reading process requires continuous practice, development, and refinement. In addition, reading requires creativity and critical analysis. There are several techniques of reading such as skimming, scanning, etc. This is also useful to us academically.

Activity 1:

Read the following excerpt by Kelci Lynn on ***Time Management*** and complete the grid given below. The first one in the grid is done for you

- Within the first few days of starting college, many students quickly learn that managing their time is one of the most challenging aspects of being in college. With so much to do and keep track of, strong time management skills can make all the difference
- Get and use a calendar. It can be a paper calendar. It can be your cell phone. No matter what kind it is, though, make sure you have one
- Write down *everything in* one place. Schedule when you plan to sleep, watch TV, spend time with friends, to study.
- Don't forget to schedule in time to relax. Just because your calendar goes from 5:30 a.m. to 11:00 p.m. doesn't mean you can
- Allow for flexibility. Things inevitably come up that you weren't expecting. Leave room in your calendar so that you can move things around a little when needed.
- Plan ahead. Do you have an exam/ a paper presentation/a record work to be submitted and the dead line is approaching? Work backward in your calendar and figure out how much time you need to write it, to prepare for it, to present/submit it. If you think you'll need 2 weeks for the entire project, work backward from the due date and schedule the time into your calendar before it's too late
- Schedule rewards in. Your pre-finals and practical exam week is a nightmare, but it will all be over on Friday by 2:30. Schedule a fun afternoon and a nice evening out with some friends; and you can relax knowing that you're not supposed to be doing anything else

***(Strong Time Management Steps for College Students: Learning How to Manage Your Time in College Can Be Critical for Your Success* by Kelci Lynn (About.com Guide))**

Steps on Time Management:

Step 1	Step 2	Step 3	Step 4	Step 5	Step 6
Get and use a calendar					

Activity 2:
Same steps as above

Read the following excerpt on ***Negotiation Skills*** and state whether the statements given below are TRUE or FALSE

Negotiation is a technique that enables us to persuade and convince others to accept our way of thinking and doing things our way, without their feeling short-changed in the process. It is widely practiced in the business arena by clients, partners, co-workers and customers. We negotiate at home too, either with a spouse, parent or children on matters that require collective decision making. The need for negotiation arises because human beings are highly distinctive creatures with strong convictions and tend to believe that their way of doing things is infallible and ought to be adopted by everyone else.

Understanding what you are negotiating for is of the first importance. It's very important to prepare well before a negotiation. Doing one's homework is an integral part of success. When preparing for a negotiation or even after it has begun, it is not enough to ask, —What does he/she want? Your research must also include, —Why does he /she want it? Often if —why does he/she want it is answered then the negotiation becomes much focused and relatively simple.

Now for a few tips- Committing to something is a big responsibility. You shouldn't make a commitment unless you can fulfill it. A person willing to commit to a deal/project evokes a lot of confidence in the other team. Don't be too generous. Generosity is indeed a virtue but here it can be constructed as a sign of weakness or worse, cowardice. Your main objective here is after all to gain as much as possible from the other side. Don't be angry. Always keep in mind that anger is a destructive force. Displaying your anger at the negotiation table will not serve any purpose. Even during the bargaining stage when it is open house for both parties you must be careful how you put your arguments across. It is often said that a war is usually won before it is even fought! So is a negotiation!

Content courtesy- MANA TV lesson on "Negotiation Skills".

Statements:

1. Negotiation means to persuade and convince others to accept our way of thinking and do things our way even if we hurt other people's feelings in the process ( )
2. The need for negotiation arises because human beings are highly individualistic and tend to believe that they are always right. ( )
3. One should prepare well before and during the negotiation ( )
4. One should never commit to anything and always be defensive during negotiation ( )
5. The main objective of negotiation is to gain as much as possible from the other side ( )

Activity 3:

Read the article by Remez Sasson given in the box on positive thinking and complete the statements 1-5.

1. Srinivas applied for a new job and he was sure that_____	Srinivas applied for a new job, but as his self-esteem was low, and he considered himself as a failure and unworthy of success, he was sure that he was not going to get the job. He had a negative attitude and his mind was filled with negative thoughts and fears for the whole week before the job interview. He was sure that he would be rejected. On the day of the interview he got up late, and to his horror he discovered that the shirt he had planned to wear was dirty, and the other one needed ironing. As it was already too late, he went out wearing a shirt full of wrinkles.
2. During the job interview Srinivas _____	During the interview he was tense, displayed a negative attitude, worried about his shirt, and felt hungry because he did not have enough time to eat breakfast. All this distracted his mind and made it difficult for him to focus on the interview. His overall behaviour made a bad impression, and consequently did not get the job.
3. During the week preceding the interview Lakshmi …….	Lakshmi applied for the same job too, but approached the matter in a different way. She was sure that she was going to get the job. During the week preceding the interview she often visualized herself making a good impression and getting the job. In the evening before the interview she prepared the clothes she was going to wear, and went to sleep a little earlier. On day of the interview she woke up earlier than usual, and had ample time to eat breakfast, and then to arrive to the interview before the scheduled time. She got the job because she made a good impression. She had also of course, the proper qualifications for the job, but so had Srinivas. What do we learn from these two stories? When the

4. Lakshmi got the job because _____	attitude is positive we entertain pleasant feelings and constructive images, and see in our mind's eye what we really want to happen. The whole being broadcasts good will, happiness and success. Even the health is affected in a beneficial way. We walk tall and the voice is more powerful. Our body language shows the way you feel inside. Positive and negative thinking are both contagious. From ***The Power of Positive Thinking*** **by By Remez Sasson** http://www.successconsciousness.com/index_00000 9.htm
5. We learn from these two stories that	

Activity 4:

Read the two resumes received for a sales position in a Textile park. Compare and choose the better resume and give reasons based on the hints provided.

Sample 1:

Shabana Begum
2- 4- 445, Nallakunta,
Near Spensers, Hyderabad.
Ph# 99490- 52555
Shabana25@hotmail.com

OBJECTIVE	:	To obtain a sales position in the retail fashion industry.
EDUCATION	:	Giriraj GDC, Nizamabad, Osmania University, B.Sc (M.P.Cs) Expected Graduation Date - June 2011 Certificate course in Ethnic fabric from NIFT, Hyd- 2008
EXPERIENCE	:	Assistant Designer, FAB India, Hyderabad
Responsibilities	:	To provide customized designs for women's summer wear, assist in designing catalogues 2010.
AWARDS	:	Best Catalogue in Ethnic line for working women, 2010 Won Runner up Award in NIFT's Young talent show 2008
VOLUNTEER	:	NSS- Village camps on AIDS awareness- 2009-11
OTHER ACTIVITIES	:	student representative of college and won many literary and cultural competitions at both district and state level
HOBBIES	:	Composing folk songs on social issues, Painting, Trained Classical dancer
REFERENCES	:	Will be provided on request

Srinivas Vangara
102 Nasser Street, Apartment 6
Ph# 99412-42222 Shakti towers,
Ameerpet.
sreinivasv@yahoo.com

Objective-

To obtain knowledge of the day-to-day operations of communications, public relations, or advertising firm or department through a part-time job or summer internship.

Education-

- *Madurai Kamaraj Open University, 2010-2011.* Emphasis on English and Telugu language. Thesis: —Indian Colloquial Expressions in R. K. Narayan's Guide
- Graduated June 2007, Hyd, in top 5% of class
- *Post Graduation from St Alphonsos, in M.*A English Literature

Experience

- *College Magazine- February 2007 - May 2007.* Student editor, contributed photographs, designed layout, and composed captions and sidebars.
- Knowledge of word processing, desktop publishing, and Web software.

Awards and Memberships

- Merit student Scholarship based on academic achievement, community service, and campus participation and leadership in high school communications projects and studies.
- *2011 Best University Newspaper Design.* Tamil Nadu district. Contest sponsored by the local newspaper- Times of India

Answers:

- Sample _____ is the better resume
- **Reasons**:

(Hints: Organization of content, language, format, clarity, font, customizing for the job, complete information, etc)

1. _____
2. _____
3. _____
4. _____
5. _____

40. Reading Skills - III

Activity 1:

Read the following passage by Remez Sasson for its central idea and write it in the space provided below.

Positive attitude helps to cope more easily with the daily affairs of life. It brings optimism into your life, and makes it easier to avoid worry and negative thinking. If you adopt it as a way of life, it will bring constructive changes into your life, and makes them happier, brighter and more successful. With a positive attitude you see the bright side of life, become optimistic and expect the best to happen. It is certainly a state of mind that is well worth developing and strengthening.

From *The Power of Positive Thinking* By Remez Sasson
http://www.successconsciousness.com/index_000009.htm

Central idea-

_____

_____

_____

_____

_____

_____

_____

_____

_____

Activity 2:

Read questions 1 to 5 and answer them with the help of the passage (***Tips to Develop Positive Thinking* by Remez Sasson**) given alongside the questions.

1. What kind of words do you use while thinking and talking? Give Examples. A. _____	Here are a few tips to help you develop the power of positive thinking: ➢ Always use only positive words while thinking and while talking. Use words such as, 'I can', 'I am able', 'it is possible', 'it can be done', etc ➢ Try to disregard and ignore negative

2. What do you do with negative thoughts? A_____ 3. What should you read every day? A._____ 4. Whom should you associate with? A. _____ 5. List activities that help you develop positive thinking? A._____ _____	thoughts. Refuse to think such thoughts, and substitute them with constructive happy thoughts ➢ In your conversation use words that evoke feelings and mental images of strength, happiness and success ➢ Read at least one page of inspiring book every day ➢ Watch movies that make you feel happy ➢ Associate yourself with people who think positively ➢ Always sit and walk with your back straight. This will strengthen your confidence and inner strength ➢ Walk, swim or engage in some other physical activity. This helps to develop a more positive attitude. From ***The Power of Positive Thinking*** **by Remez Sasson** http://www.successconsciousness.com/index_000009.htm

Activity 3:

Read and arrange the following sentences in logical sequence by numbering them 1 to 5. An example (1) has been done for you.

- In just 0.4 hectares of rain forest there some 1500 plant species and 750 tree Species ( )
- The rainforest has also provided us with many products such as chocolate, vanilla, chicle, bananas and various medicinal cures ( )
- Rainforests play a vital role in regulating the Earth's climate, preventing soil erosion and storing and purifying water ( )
- The deforestation of the world's rainforests has massive environmental implications, threatens the homes of many indigenous peoples and endangers the habitat of many creatures ( )
- Furthermore they are home to over half the world's species. ( )

[Source: Guardian Education, 23/04/02, 'Forest pyre' adapted]

Activity 4:

Read the excerpt from a group discussion on the topic '*Managers are Born, not Trained*' given below. Identify the viewpoints of the speakers and write in one or two sentences in the space provided

Ramesh: Well friends, a very good morning to all of you. The topic of today's discussion is —Managers are born, not trained and I completely agree with the topic. All of us sitting here are pursuing managerial education. We are learning traits to become successful managers. However, in spite of getting the same education will we all get the same success and position at various managerial levels?

Saritha: This is how I look at it. If managers are born why is he studying in a management institute? Management is both a science and an art. To be a good manager one has to undergo some training. Thank you.

Azher: Friends I also feel that managers are born and these attributes are in a person's genes. Managing means getting things done in the right manner, at the right time and in the right direction. Tatas, Birlas, Ambanis and Singhanias did not possess any professional management degree and we all know their success stories. Similarly, General Electric and Fords Motors did not have a management cadre to begin with. All these examples validate that managers are born not made.

Excerpt from Student Training Material designed by Mrs. J. Jayashree Murthy, Sr Trainer based in Hyderabad.

Ramesh's view point-

_____

_____

Saritha's view point-

_____

_____

Azher's view point-

_____

_____

41. Reading Skills - IV

Activity 1:

Read statements 1 to 5 based on the passage by Dr. Alan Zimmerman given in the box below and tick the correct option

E.g.: It takes about ***1/1000th /1/100th*** of a second for Olympians to run that distance in the 100-meter race

1. At the 1992 Barcelona Olympic Games, the gold medal for women's 100-meter dash was won by an ***American/ Australian***

2. The winning athlete crossed the line only 2-1/2 **centimetres/ inches** in front of her closest opponent

3. Fifth place went to a ***Jamaican/ German*** who finished a mere 6/100th of a second behind the American

4. Research says that positive attitude is the little bit of difference that makes ***no/all*** the difference in success in both your personal and professional lives

Attitude/ Speed is more important than any other element when it comes to ensuring success.

Hold up your thumb and forefinger about 2-1/2 inches apart. It takes about 1/100th of a second for Olympians to run that distance in the 100-meter race. But that's the difference between winning and losing. In the women's 100-meter dash at the 1992 Barcelona Olympic Games, for example, the gold medal was won by an American who crossed the line only 2-1/2 inches in front of her closest opponent. Fifth place went to a Jamaican who finished a mere 6/100th of a second behind her. And yet that little bit of difference made all the difference in the world. The same goes for attitude. When you compare age, gender, upbringing, education, IQ, and just about any other factor you can think of, research says that positive attitude is the little bit of difference that makes all the difference in success in both your personal and professional lives. In fact, the research makes it clear that attitude is more important than any other element when it comes to ensuring success. From ***A Positive Attitude Increases Success*** **by** Dr. Alan Zimmerman http://sbinfocanada.about.com/od/motivation/a/posattitudeaz.htm

Activity -2 ***(Pair Work)*** ***(Reading – Writing - Speaking)***

Read the text given below and the statements that follow.

Write:			
	True	:	if the statement is true according to the text.
	False	:	if the statement is false according to the text.
	Does not say	:	if the information is not given in the text.

Water – The Issue of This Century

The world is running short of fresh water. Populations are growing bigger and thirstier, with the result that fresh water is becoming increasingly scarce. Half the world's wetlands, have disappeared during the last century, while estimates suggest that water use will rise by 50% in the next 30 years.

The World Bank report estimates that as much as half of the world's population, concentrated in Africa, the Middle East and south Asia, will face severe water shortages by 2025. Local water conflicts and the loss of freshwater ecosystems loom in some regions.

Fresh water consumption is rising quickly, and the availability of water in some regions is likely to become one of the most pressing issues of the 21st century.

A third of the world's population around two billion people live in countries that are experiencing moderate to high water shortages. That proportion could [at current population forecasts] rise to half or more in the next 30 years unless institutions change to ensure better conservation and allocation of water.

China is one country where the portents are gloomy. The most water-stressed country in East Asia, China is exploiting 44% of its usable water, a figure projected to rise to 60% by 2020.

A similar picture emerges from the globe's salt water regions. Three quarters of the world's people may live within 100km of the sea in 2025, putting even more pressure on stretched coastal Ecosystems.

Two-thirds of fisheries are exploited at or beyond their sustainable limits, and half the world's coral reefs may perish in 100 years. Almost 60% of coral reefs and 34% of fish species are at risk from human activities, the Bank says.

The report concludes that there is ample evidence to justify immediate and coordinated action to safeguard supplies and use water more efficiently.

Primary withdrawal of water of more than 60% is widely considered by water experts to exceed the environmental carrying capacity of a river basin system. Although China's aggregate use appears still to be reasonable, it has several basins that are severely stressed environmentally.
Withdrawals exceed environmental limits in Afghanistan and Pakistan, and will exceed them in India by 2020. In the Middle East and North Africa, only Morocco has unexploited water resources.

The rest have exceeded environmental limits and many are mining aquifers – bodies of water-bearing rock – the report says. [Source: Elliot, L., *Guardian*, 22 August 2002, p 26.]

Statements:

1 Fresh water is becoming increasingly scarce in the world ( )

2 Half the world's wetlands were lost in the twentieth century. ( )

3 It is estimated that water use will rise by 50% in the next 30 years. ( )

4 Some Mediterranean countries will face severe water shortages by 2025. ( )

5 Most of the world's population may live within 100km of the sea in 2025. ( )

6 China is the most water stressed country ( )

7 Almost 60% of coral reefs may perish in 100 years. ( )

8. Some species of fish in the Atlantic are at dangerously low levels. ( )

9. In the next 30 years, around three billion people could experience moderate to high water shortages. ( )

10. India exceeds environmental limits of water use. ( )

Activity: 3

This summary of the text *Water – The Issue of This Century* (Activity 2) has words removed. Select the missing word for each gap from the box that follows. (Use each word only once.)

According to the World Bank---1---- as the world's population grows, the demand for fresh water is ...**2**..... and wetlands are disappearing. Up to half the world's population will have ...**3**..... water problems by 2025. This may lead to… ...**4**..... Coastal regions will...**5**..... similar problems. Overfishing will damage fish stocks and coral reefs may ...**6**..... . Immediate is needed to ...**7**..... water supplies and encourage more efficient use. If this is not done, the numbers suffering **8**..... will rise by 50% in the next 30 years. China has the most serious problem in East Asia with freshwater withdrawal set to ...**9**..... environmental limits by 2020. Other countries with severe problems include most of the Middle East, North Africa, and the Indian sub-continent.

Exceed	Increasing
Destroyed	Serious
Report	Projected
Availability	Safeguard
Shortages	Face
Consumption	Conflict

Activity -4 *(Group work)* *(Reading – Writing - Speaking)*

Read the advice below on writing a CV.

- Choose the best word to fill each gap, from **A, B, C** or **D** given in the box below
- An example (**0**) has been done for you

Guidelines for Writing Your CV

A well-produced CV can make all the difference when applying for a job.

It can take a reader just 30 seconds to (**0**)..... a decision about a CV. So when writing a CV, you should remember you have just half a minute to (**1**)..... the reader's interest, leave a clear (**2**) ..... of professionalism and indicate the likely (**3**) ..... to an employer of hiring you. To prepare a CV which is (**4**) ..... will take time and possibly several drafts. Layout, presentation and a choice of words which demonstrate both responsibility and achievement are vital (**5**) ..... of any CV. No matter how well your career background and skills (**6**) ..... the needs of an employer, your efforts could (**7**) ..... if you make it difficult for the reader to take in the relevant information. As your message must register quickly, make the reader's task an easy one. (**8**)..... that the print is well spaced and that the key information is displayed clearly. The (**9**) ..... of the CV is to generate interviews. Visually, you want your CV to have a positive effect, but it is also necessary for it to (**10**) ..... the reader that you are worth meeting. The style in which you present your CV is a (**11**) ..... of personal choice, but it is important that you use words which (**12**) ..... an active and successful career.

Example:		
A meet	**B** reach	**C** arrive

1	**A** take	**B** realise	**C** gain
2	**A** influence	**B** impression	**C** meaning
3	**A** resource	**B** credit	**C** benefit
4	**A** certain	**B** efficient	**C** capable
5	**A** components	**B** sections	**C** pieces
6	**A** correspond	**B** match	**C** coordinate
7	**A** decline	**B** fold	**C** collapse
8	**A** Ensure	**B** Allow	**C** Confirm
9	**A** incentive	**B** purpose	**C** result
10	**A** decide	**B** prompt	**C** convince
11	**A** subject	**B** condition	**C** situation
12	**A** inform	**B** suggest	**C** appear

42. Reading Comprehension

Read the following passages carefully:

Passage-1

We are tempted to **assume** that technological progress is real progress and that material success is the **criterion** of civilization. If the eastern people become **fascinated** by machines and techniques and use them, as western nations do, to build **huge** industrial organizations and large military establishments, they will get involved in power politics and **drift** into the danger of death. Scientific and technological civilizations bring great opportunities and great rewards but also great risks and temptations. Science and technology are neither good nor bad. They are not to be **tabooed** but **tamed** and **assigned** their proper place. They become dangerous only if they become **idols**.

1. What are the problems with technological civilization?
2. What is the advice of the author?
3. What should not become idols?
4. What should not we assume?

Passage-2:

It is not luck but labor that makes men. Luck, says an American writer, is ever waiting for something to turn up; labor with keen eyes and strong will always turns up something. Luck lies in bed and wishes the postman would bring him news of a **legacy**; labor turns out at six and with busy pen and ringing hammer lays the foundation of competence. Luck whines, labor watches. Luck relies in chance, labor on character. Luck slips downwards to **self indulgence**, labor **strides** upwards and aspires independence. The **conviction**, therefore, is extending that **diligence** is the mother of good luck; in other words, that a man's success in life will be proportionate to his efforts, to his industry, to his attempts to do small things in a great way.

1. What is the theme of the passage?
2. What does 'luck' do in the morning?
3. How does 'labour' work hard?
4. How will a man achieve success?

Passage-3:

Nature is like business. Business sense dictates that we guard our capital and live the interest. Nature's capital is the **enormous diversity** of living things. Without it, we cannot feed ourselves, cure ourselves of illness or provide industry with the raw materials of wealth creation. Professor Edward Wilson, of Harvard University says, "The folly our **descendants** are least likely to forgive us is the ongoing loss of genetic and species diversity. This will take millions of years to correct". Only 150 plant species have ever been widely cultivated. Yet over 75,000 **edible** plants are known in the wild. Ina hungry world, with a population growing by 90 million each year, so much wasted **potential** is tragic. Medicines from the wild are worth around 40 billion dollars a year. Over 5000 species are known to yield chemical with cancer fighting potential. Scientists currently estimate that the total number of species in the world is between 10-30 million with only around 1.4 million identified.

1. How many edible plants are known in the world?
2. Who turned nature into business?
3. What is nature's capital?
4. Why won't we be forgiven according to Prof. Wilson?

Passage-4:

Patience is better than wisdom. An ounce of patience is worth a pound of brains. All men praise patience, but few can practice it. It is the medicine which is good for all diseases, but it is not every garden that grows the herbs to make it with. Many people are born crying, live complaining and die disappointed. They think every other person's burden to be light and their own feathers to be heavy as lead, and yet if the truth were known, it is their **fancy** rather than their fate that makes things go so hard with them. Many would be well-off if they could but think so.

1. What does the writer speak about patience?
2. How do people live?
3. How is patience better than wisdom?

"They think every other person's burden to be light and their own feathers to be heavy as lead" – what is the meaning of this line?

Passage-5:

It is difficult to reconcile the ideas of different schools of thought on the question of education. Some people maintain that pupils at school should concentrate on a narrow range of subjects which will benefit them directly in their subsequent careers. Others contend that they should study a wide range of subjects so that they have not only the specialized knowledge necessary for their chosen careers but also around general knowledge about the world they will have to work and live in. Supporters of the first theory state that the greatest contributions to civilization are made by those who are most expert in their trade or profession. Those on the other side say that, unless they have broad general education, the experts will be too narrow in their outlook to have sympathy with their fellows or a proper sense of responsibility towards humanity as a whole.

1. How many theories are discussed?
2. What does the first theory say?
3. Do you agree with the second theory? Why and why not?
4. Will the first theory help students in developing professionalism? Why?

WRITING SKILLS

43. Paragraph Writing

We all know that writing something in the form of paragraph is what we do normally in classrooms.

When do we write a paragraph?

1. From the hints that are given to us.
2. Expanding a proverb/saying.
3. When writing a précis of a passage.
4. When summarizing a real life experience/situation.

Though we are used to writing paragraphs, we are not much aware of principles of writing them.

- Each paragraph is a self-contained logical argument, crafted to stand on its own
- It may be long or short may be descriptive or critical
- It may be built on a real incident/situation or may be on imagination

What are the principles?

Here are some key principles toward making good paragraphs:

1) **Have an eye catching, descriptive topic sentence:** It is normally the first sentence of your paragraph. It is to be so catchy for the readers that they can focus their attention on the rest of the paragraph after reading through it. *The topic sentence is the guidepost that tells the reader what to expect. It sets up the coming argument.* The topic sentence needn't necessarily be the first sentence, but it should obviously come early. Here's two ways of recognizing a good topic sentence:

   - Is the rest of the paragraph about the topic sentence?
   - If you go through your manuscript, highlighting just the topic sentences, is the manuscript still coherent?

2) **A paragraph has an inevitable logic:** The *topic sentence raises expectations*. Now you follow through your argument: a *set of logically connected sentences* that *clearly, coherently* and *concisely builds* your case. But a logically well-constructed paragraph is what the readers anticipate for.

3) **One juicy example:** Remember, you are teaching your reader about something. The logic may be exact and true, but without a suitable example that connects to your logic, your argument lacks perfection. It becomes an abstract thing. Adding a good example to a paragraph is like adding salt in your recipe.

4) **Style: Use simple, easily understandable language. Don't use jargon. Don't beat round the bush. Don't use heavy diction. Think from the reader's view point.**

5) **Summary sentence**. More often than not a strong summary statement is required. It serves two purposes. *First*, the summary sentence is your opportunity to introduce some repetition precisely where your reader is expecting it. *Second*, the summary sentence can point the reader to where you want to go next. In short, the topic sentence telegraphs your manuscript's logic.

Writing an effective paragraph is perhaps the single most important communication skill to acquire in your first years of school. It is a skill we all universally admire. And that's a big step toward getting your ideas out there.

"I write one page of masterpiece to ninety one pages of shit," Hemingway confided to F. Scott Fitzgerald in 1934. "I try to put the shit in the wastebasket."
(Adopted from //http. www.eebatou.wordpress.com)

Activity-1:

Expansion of proverbs:

Read the following passage for the expansion of proverb-"Where there is a will, there is a way:

This proverb says that *if we really want to do something, we will find a way to succeed.* Determination, dedication and effort are the qualities that a man needs to get success. We may come across many hurdles in life. It is the fixed mind that takes us towards success. It makes us be prepared and also gives strength to overcome the hurdles. It shows the way how to proceed through the hurdles. Fickle or inconstant mind won't help. Hence *we have to fix a goal, dedicate ourselves to it and be determined and make a sincere effort*. Then only we can fulfill our dreams.

Expand the following proverbs:

1. Slow and steady wins the race.
2. A rolling stone gathers no moss.
3. Empty vessels make more noise.
4. Self help is the best help.
5. Prevention is better than cure.

Activity-2:
Writing a paragraph from the hints given:

Read the following hints and also the paragraph written below:
A beggar- dashed down by a speedy lorry-crawling on the road-wounded-nobody cared for- I look for assistance-a constable-comes-say that handing over at the hospital-both take to hospital-the doctor appreciated.

The other day I was standing at the bus stop waiting for my bus. As I was about to board the bus, I saw an old beggar who was crossing the road was dashed down by a speedy lorry. In no time, the lorry sped away and the beggar fell down to his knees. He was crying his lungs out with pain. He was severely wounded. To my surprise nobody cared for him. Everyone was in a hurry. I thought that it was inhuman. I went near the beggar. He was almost crawling. I looked for some assistance. A police constable, who was going by, came to me. He understood that the beggar needed medical care immediately. So we called an auto rickshaw, placed the beggar in it, and took him to the government hospital. The doctor admitted him at once and gave him the needed treatment. He appreciated us for the civic sense.

44. Essay Writing

What is a good essay?

- An essay is a long composition written in prose.
- To write an essay we need to have a topic. This makes the foundation to our essay. It also shows a direction to us.
- It contains a main idea supported by one or more other ideas. The main idea is like the 'topic sentence' in a paragraph. The entire essay revolves round this main idea (also called 'thesis statement). It will be normally based on an observation, a known fact, or a claim.
- Thirdly it has parts like 'introduction, body and the conclusion'. The introduction may begin with a question, or a statement. The body goes with suitable examples. The conclusion shall be apt and relevant.
- The essay needs to have logic, coherence, clarity and also a purpose.

Given below are some principles to write an essay:

1. Writing a good essay requires good *organization and planning*.
2. Brain storm yourself to arrive at points/ notes. Use *your notes to plan* your outline. Your outline should include only notes. Never write full sentences.
3. Plan the *structure and content* of your essay in the outline; you can then focus on language when you start writing because content has already been planned.
4. Think of a general sentence(s) to start your essay with which will take the reader into the topic.
5. Decide on the *topics of the middle paragraphs* (body). *Include a topic sentence for each paragraph* in your outline, again in notes form.
6. Think of a *good link between the two body paragraphs*.
7. Now to the conclusion. Two points here:
   (a) Restate the thesis, e.g., "It is clear from the above that…." *OR* "As can be seen, there are …"
   (b) A concluding comment to close your essay or perhaps a question that leaves the reader thinking about the topic.

Some useful expressions to conclude: therefore, all in all, In short, in a word, on the whole, In conclusion, what we have, then, in sum, to summarize, in summary, in brief, finally, to conclude

1. Refer to the outline and follow the same order because it is the plan of your essay so you don't forget the order of ideas, the topic sentences and the links.
2. Use appropriate linking words (transitionals) to link your sentences.

3. Attempt writing an essay in several drafts. One can't get the best in just one draft
4. Finally don't forget to give your essay an appropriate title which indicates to the reader the issue your essay discusses.
5. Always *check and proofread your essays before submission for marking*. Spelling and verb errors affect your work. You may *use an English-English dictionary*.

ESSAY MAP

Why use an essay map?

An essay map helps you plan and organize your thoughts before you sit down to write your essay. Because an essay needs to be presented in a clear and organized form, it is important to consider the essay's main points and how you plan to present them before you actually start writing it.

How to use an essay map:

1. **First, write your thesis statement.** Ideally, your thesis statement is one sentence, but depending on the complexity of your thought, it might be 2 sentences.
2. **Second, use your thesis statement to construct the topic sentences for each of your body paragraphs.** If you have 3 main points listed in your thesis statement, you should have 3 body paragraphs. In other words, each main point of your thesis statement deserves 1 body paragraph to explain it thoroughly.
3. **Third, think of supporting details.** It is important to relate whatever supporting details you have to strengthen your argument
4. **Fourth, conclude your essay's main points in a conclusion paragraph.** The essay map provides a nice overview of your essay's main points, so it can be useful to use the essay map as a guide for writing your conclusion.

Create your own essay map:

Note: If possible, print out this page to have a more "hands on" approach.

Thesis statement: _____

_____

_____

Body paragraph #1 topic sentence (make sure it relates to the thesis above!):

_____

_____

_____

Evidence from the readings that supports the main point of this body paragraph –

- _____
- _____

Personal examples that you plan to incorporate into this paragraph – just briefly describe them so that you know which ones you want to include; you can write more details when you write the actual essay:

- _____
- _____

Body paragraph #2 topic sentence (make sure it relates to the thesis above!):

_____

Evidence from the readings that supports the main point of this body paragraph

- _____
- _____

Personal examples that you plan to incorporate into this paragraph – just briefly describe them so that you know which ones you want to include; you can write more details when you write the actual essay:

- _____
- _____

Body paragraph #3 topic sentence (make sure it relates to the thesis above!):

_____

Evidence from the readings that supports the main point of this body paragraph –

- _____

❖ _____

_____

_____

Personal examples that you plan to incorporate into this paragraph – just briefly describe them so that you know which ones you want to include; you can write more details when you write the actual essay:

❖ _____

_____

(Essay map adopted from EFL Assessment course material, University of Maryland, U.S.A)

Practice:

Write on the following topics:

1. Use of mobile phones on the campus
2. Role of anti-ragging cell in educational institutions
3. Students role in community development
4. Development of Social Awareness in students
5. Should women be empowered for social and economic security?
6. Corruption and politics
7. Time management in studies
8. Globalization
9. Unemployment
10. Caste system in India

45. Note Making

Making notes is a complex activity which combines several skills. Note making is an advanced writing skill which is acquiring increasing importance due to knowledge explosion. There is a need to remember at least the main points of any given text. What is the main idea of the passage? How has the main idea been presented and developed? Are there two or three subordinate/associated ideas? You can frame subheadings based on these. Are there further details or points of the subtitles that you wish to keep in these notes? Indent, i.e., provide space suitably and number them. All subheadings should be written at a uniform distance from the margin. All points should also maintain the same distance away from the margin.

Pre- activity:

What do you do when you read an interesting essay or article? You try to make notes for future use.

Note - making is a skill to organize ideas. It helps us to concentrate on important points; to handle large quantities of reading material; to remember and recollect main points and helps for better understanding and retention.

How to go about it:

- Skim the text and know what it is about
- Read again to identify the main points. **Underline key words, phrases, headings** etc
- Be selective. Choose one or two learning points. Remember we are only summarizing key points!
- While making notes **use short forms, abbreviations, symbols** etc. **Use diagrams, tables** wherever necessary
- Focus on information giving words mostly nouns, verbs, adverbials
- Leave out functional words like prepositions, articles etc
- **Use your own words to make notes**
- Have full bibliographic details (author, date, name of article/book website, publisher, where published etc) of the reading in your notes
- Some ways of note making: flow chart, matrix/ table, concept map, patterned notes/ mind mapping, sequential/ linear

Activity 1:

Sequential/ Linear Note Making

- **Include key-words, headings and sub-headings to connect key-concepts**
- **Underline and highlight important aspects**

- Use spaces, bullets, numbers, etc.

  Eg: A----------(Heading)

  1 ----------(Sub-heading)

  a----------(key – topic)

  b----------(key – topic)

  2 ----------(Sub-heading)

  a----------(key – topic)

  b----------(key – topic)

  - ------ (key – topic)
  - ------ (key – topic)

  B---------- (Heading)

  1 ---------- (Sub-heading)

Read the following paragraph and supply missing points in the notes made below

Minerals are mainly classified as metallic and non metallic minerals. The metallic minerals contain metal in raw form. Metals are hard substances that conduct heat and electricity and have a characteristic luster and shine. Iron ore, bauxite, manganese ore are some examples. Metallic minerals may be ferrous or non ferrous. Ferrous minerals like iron ore, manganese and chromites contain iron. A non ferrous mineral does not contain iron but may contain some other metal such as gold, silver, copper or lead. The non metallic minerals do not contain metals. Lime stone, mica, and gypsum are examples of such minerals. The mineral fuels like coal and petroleum are also non metallic minerals. Minerals can be extracted by mining, drilling, or quarrying. The process of taking out minerals from rocks buried under the earth's surface is mining. Minerals that lie at shallow depths are taken out by removing the surface layer: this is known as open cast mining. Deep bores, called shafts, have to be made to reach mineral deposits that lie at great depths. This is called shaft mining.

Petroleum and natural gas occur far below the earth's surface. Deep wells are bored to take them out, this is called drilling. Minerals that lie near the surface are simply dug out, by the process known as quarrying. (Source: based on VIII NCERT Geography text book)

Layout for notes:

1. Metallic mineral has metal in raw form. Ex. Iron ore,----------, ----------

   → ferrous mineral contains iron

   E.g.: iron ore, manganese.

   → ----------has

E.g.: gold, silver, copper, lead.

2. Non metallic mineral has no metal Ex: ----------

Extraction of minerals

a. Mining- taking out from rocks under the earth.

1. Opencast mining- ----------

2. Shaft mining- ----------.

b. ---------- - to bore deep wells far deep into earth

c. ---------- to dig out near the earth's surface.

Activity -2 *(Group work)* *(Reading – Writing - Speaking)*

Read the following text and make notes. Use your own lay out.

Soil is grouped into different varieties based on colour, origin, composition, texture and location. Alluvial soil is rich and fertile formed by the depositional action of rivers. Rivers transport eroded material from their higher reaches and deposit this material on their banks as they reach the plains. This fertile alluvial soil supports cultivation of crops. In India we can find rich deposits of alluvial soil in the vast Indo-Gangetic Plains and the deltaic regions of the peninsular belt. It covers almost 24% of India's land area. Black soil or cotton soil is found in and around lava plateaus. This deep and clayey soil swells when it is wet and contracts when it is dry. It is ideal for the growth of cotton. It is considered good for the cultivation of cereals, pulses, oil seeds, citrus fruits, vegetables etc. Red soil is red and sand because of the presence of iron oxides. In the low lands they are normally fertile but in the dry uplands they are less fertile. It is suitable for the growth of millets, cotton, wheat, onions, potatoes etc. In India it is found in the periphery of the black soil regions in the states of Orissa, M.P, Tamil Nadu, A.P, and Kerala. Laterite soil is formed due to intense leaching in regions with heavy rainfall. This soil is not naturally fertile as the top soil along with humus is washed away by heavy rainfall. To make the soil cultivable it has to be treated with fertilizers. It is used for growing jute, millets, fodder crop etc. It is found in Maharashtra and West Bengal. Arid and sandy soil is found in the dry regions. The colour of the soil varies from dark shades of reddish brown to pastel brown. It has very low moisture and humus content as it is found in the dry deserts. It is found in western Rajasthan. In the regions where there is dense vegetation we can find peaty and forest soil. This soil is rich in humus as the organic matter that accumulates in the forests decomposes to provide the same. This type of soil can be found in the forests of Bihar, Uttaranchal. (Source: based on VIII NCERT Geography text book)

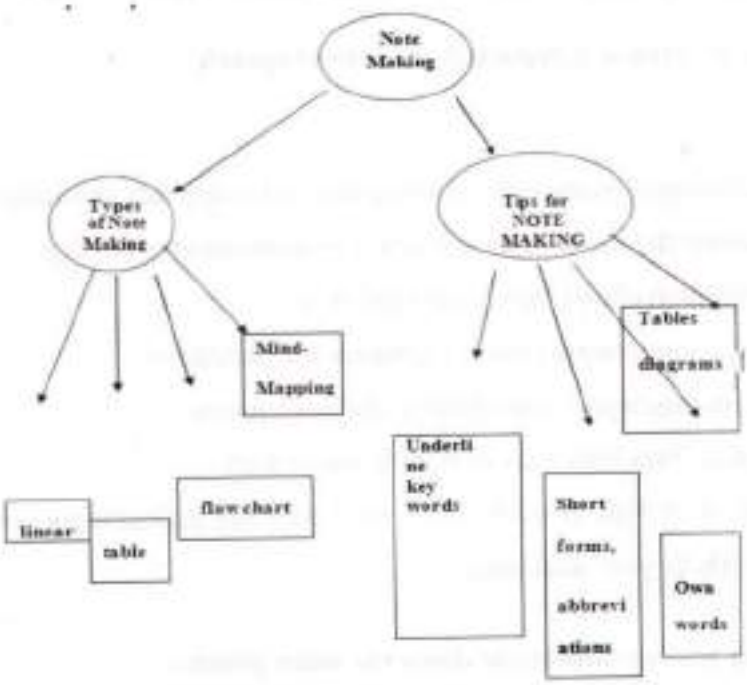
PATTERN NOTE-MAKING / MIND-MAPPING

1. Start with a central heading in the centre of the page
2. Note key words, ideas that surround the central idea / concept Highlight heading and subheadings with boxes / circles Arrows / lines ('branches') to link key words, ideas
3. These branches should radiate from the central topic / idea
4. You can use ***flowchart/series of events chain, compare and contrast matrix, fishbone map***

Activity -4 ***(Pair Work)*** ***(Reading – Writing - Speaking)***

Observe the following mind-map and make notes.

Mind Map example



Land can be classified on the basis of relief as plateau and mountains. It is termed as fertile and barren land on the basis of soil fertility. It is differentiated as rural and urban land on the basis of development of that area. It is defined as private and community owned or government land on the basis of ownership of the land. Private land belongs to an individual. Community land is owned by a group of people in a community for common uses like collection of fodder, fruits, nuts or medicinal herbs. These lands are also referred to as common land or common property resources. The use that we put a land terms it as arable land (land which is suitable for crop production), pasture land (land used for grazing animals) forests, fallow (land which can be cultivated, but has been left unused for the season), cultivable waste (land which can be cultivated but which has been lying fallow for more than five years) and non agricultural land. (Source: based on VIII NCERT Geography text book.)

46. Précis Writing

A précis is a condensed restatement of a passage, roughly 1/3 the length of the original and it highlights the key information provided in the passage. It is usually in the indirect speech and in third person view point. Précis does not mean just reducing the length or cutting down some of the vague and redundant point. Not only that, the beauty of the passage should not be killed. The précis should also have a title

Points to remember:

- A précis is a short summary of the original; it is not a word-to-word paraphrase
- A précis gives the heart of the passage
- The précis should be written from the original author's point of view, without distorting the meaning
- A précis should be written in **reported or indirect speech**

Guidelines:

- Read the given passage sentence by sentence and make sure that you understand it.
- Select and underline the most important points contained in the passage.
- Refer to the dictionary, clarify and make brief notes
- Avoid repetitions, unimportant points, examples and anecdotes.
- Go through the passage again, jotting down the main points
- Organize your ideas into sentences to make a rough draft
- Revise the rough draft with focus on unity, coherence and logical sequence of ideas
- Give a suitable title to your final draft

I. Read the following passage and write down the main points:

Read the following passage and make a précis giving a suitable title

'A **précis** is not an outline, but a summary or digest. It is useful as an exercise in grasping the essential ideas of an already completed composition and in stating these ideas in concentrated form. The précis shears away all elaborations of the thought and gives only what is left, in such a way as to make the summary a complete composition. It does not, therefore, skeletonize the original composition so much as it reduces its scale. Many of the articles in *The Reader's Digest* are only précis, so skillfully done that the average reader does not know that he is reading a summary. Since the précis says a great

deal within a brief space, it is of great service in taking notes on library assignments and general reading." (Donald Davidson, *American Composition and Rhetoric*. Scribner's, 1968)

II. Read the short story and condense it 1/3 of its length. Also give it a suitable title:

Once upon a time, there was a Selfish Man. He liked everything to be his own. He could not share his belongings with anyone, not even his friends or the poor. One day, the man lost thirty gold coins. He went to his friend's house and told him how he had lost his gold coins. His friend was a kind man. As his friend's daughter was coming from an errand she found thirty gold coins. When she arrived home, she told her father what she had found.

The girl's father told her that the gold coins belong to his friend and he sent for him. When the selfish man arrived, he told him how his daughter had found his thirty gold coins and handed them to him. After counting the gold coins the man said that ten of them were missing and had been taken by the girl as he had forty gold coins.

He further commented that he would recover the remaining amount from him (the girl's father). But the father refused. The man left the gold coins and went to the court and informed the judge about what had taken place between him and the girl's father. The judge sent for the girl and her father, and when they arrived asked the girl how many gold coins she found. She replied thirty gold coins. The Judge then asked the selfish man how many gold coins he lost and he answered forty gold coins. The judge then told the man that the gold coins did not belong to him because the girl found thirty and not forty as he claimed to have lost. (272 words)

Courtesy: sureshkumar.net

Main points:

1. A selfish man lost thirty gold coins
2. ----------
3. ----------
4. ----------
5. ----------

Rough Draft:

Fair Draft:

Title: ----------

47. Résumé Writing

Résumé is a well designed and subtly prepared piece of personal document. Acting as an advertisement, a Résumé presents your educational background, unique set of skills, abilities and experience to the target audience especially the potential employer. Résumé is prepared not just for the sake of submitting to an employer, but for self-assessment as well. It helps asses your skill set and set new career goals. Objective self-assessment always gives proper direction in one's career. It is so important to pay utmost attention while designing and preparing your Résumé. Many of us are hesitant to put down just how much we have done, or how good we are.

Employers agree that the candidates who have excellent communication skills, good grooming habits and relevant work experience impress them. Employers also say that they want to trust worthy employees who can move right and get along with their co-workers, and get the job done without having to be guided at each step. No matter what job you are applying for, your Résumé must focus on at least some of the best desirable employable qualities. Your past track record must demonstrate some of the employable qualities.

Format and Appearance

- You need not give a "RÉSUMÉ" heading to your document. It is obvious by its structure and appearance
- Usually people have a tendency to use fancy and colourful fonts. Resist the temptation. Use the internationally accepted Arial and Times New Roman font between 10 and 12 size.
- Use bullets to enlist the entries. It will structure your Résumé, improve the appearance and will make it easy to read.
- It has been customary practice to have the Résumé confined to one page. But you need not overcrowd it. If your information requires more than one page, it is no blunder if you exceed to the second page. In such case see that all key points are presented in the first page itself.
- Always use short sentences.

Main Components of Résumé are:

- Contact/Identifying Information
- Job/Career Objective
- Summary of Qualifications
- Education
- Work experience
- Skills/Accomplishments/Qualifications
- Miscellaneous

TYEPES OF RÉSUMÉS

All Résumés are not alike. It is advisable to adopt different formats of Résumés for different needs of the candidates. Actually there are two types of Résumés, in addition to the online Résumés. They are:

- Reverse Chronological Résumé
- Skills or Functional Résumé

Which one is best for you depends on many factors such as your experience level, the level of the job being applied for, the employer and the sector of the industry, whether you are applying for a promotion or a career change and so on. Here are some guidelines to help you decide what is best for the job you are applying for.

Reverse Chronological Résumé

A reverse chronological résumé enumerates a candidate's job experiences in reverse chronological order. The reverse chronological résumé format is most commonly used by those who are not professional résumé writers. In using this format, the main body of the document becomes the Professional Experience section, starting from the most recent experience going chronologically backwards through a succession of previous experience. The reverse chronological résumé works to build credibility through experience gained, while illustrating career growth over time and filling all gaps in a career trajectory

Functional Résumé

The functional résumé is used to assert a focus to skills that are specific to the type of position being sought. This format directly emphasizes specific professional capabilities and utilizes experience summaries as its primary means of communicating professional competency. The functional résumé works well for those making a career change, having a varied work history and with little work experience. A functional résumé is also preferred for applications to jobs that require a very specific skill set or clearly defined personality traits.

Online résumés

The Internet has brought about a new age for the résumé. As the search for employment has become more electronic, résumés have followed suit. It is common for employers to only accept résumés electronically, either out of practicality or preference. This electronic boom has changed much about the way résumés are written, read, and handled.

MODEL CHRONOLOGICAL RÉSUMÉ

Ilavarapu Richie Rezie
Flat No.503, Ahsritha, MVP Colony
Visakhapatnam – 530 017
Mob. No.9849829554 reziepaul@yahoo.com

Objective

To apply my financial management and customer services skills in a full time position in a large financial services organization.

Education

- MBA from Andhra University, Visakhapatnam in distinction in 2006
- B.Sc.Computers from Acharya Nagarjuna University with a first class in 1999.
- PG Dip. in Personnel Relations from IGNOU, New Delhi

Experience

Manager Sales in Reliance since 2006 till date

- Facilitated successfully in streamlining the stocks which saved the company even at the times of recession.
- Provided daily review of the quality of the products acquired from the other firms which enhanced the reliability of our products.
- Motivated other team members in working with commitment.

Sales Associate, Indegenus from July 2010 to April 2014

- Merchandised designer women's wear
- Set-up trunk shows and attended clinics for new incoming fashion lines
- Worked with tailors and seamstresses for fittings
- Scheduled private shopping appointments with high-end customers

Computer Skills

Proficient in C. C++. Java, Internet and MS Office
References and work sample available upon request.

Coclusion

So far we have discussed the importance of preparing a Résumé, and its major components. We also have discussed different styles and formats of Résumé. Having discussed so much a mild warning to the reader: your Résumé must be attractive at the same time it must be honest. Content is more important than the appearance. Overcrowded Résumé may hide the vital qualities. Hence pay a balanced attention to the format as well as to the content. Make it error-free. Prepare it, edit it, proof-

read it and then post it. The learners must not forget that most of the companies have their own websites and calling for electronic online Résumés. Hence the learners are advised to keep themselves abreast with the latest knowledge and developments.

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WEBSITES

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www.bestresumewriting.com

www.resumeapple.com

www.resumeedge.com

www.searchindia.com

www.naukri.com

www.monsterindia.com

Soft Skills

48. Soft Skills: An Overview

Soft skills are personal skills, which make a person more polished and more successful. Soft skills are part of interpersonal and intra-personal skills that play a crucial role in demonstrating the characterized relationship with the other. Soft skills are about projecting oneself and one's professional skills in the best possible way, and taking a holistic view of things. They are about how you interact with and react to others when you come in contact with them. hey enable you to zero in on the most important point you want to make, but in an attractive and charming manner. The fine tuning of character is done with soft skills.

To understand the importance of soft skills the readers are advised to go through the following anecdote. An old Cherokee* was teaching his grandson about life. He said to the boy: "A fight is going on inside me. It is a terrible fight and it is between two wolves. One is evil. He is anger, envy, sorrow, regret, greed, arrogance, self-pity, guilt, resentment, inferiority, lies, false pride, superiority and ego". "The other, he continued, is good. He is joy, peace, love, hope, serenity, humility, kindness, benevolence, empathy, generosity, truth, compassion and faith." "The same fight is going on inside you and inside every other person, too." said the old man.

The grandson then asked his grandfather: "And, which wolf will win grandpa?" "The one you feed, my son!" – simply replied the old Cherokee.

Well, I think that this is just what soft skills are about. It is about training the 'good wolf', showing kindness and being gentle towards the others, being patient and listening to them, giving pleasure to them while they communicate with you, smiling with everyone around you and radiating respect, understanding and pleasure. In today's world, we need soft skills more than our technical skills and academic qualifications, to make our lives peaceful, successful and productive, both in the private and public spheres.

Why Soft Skills?

"*You can't manage your life until you manage your emotions.*" Lynn Clark

We strongly desire to live happily and successfully. So we go for higher education and seek employment in good companies. We cannot get trained in all the skills in our academic education, so finishing schools have come up in North America, Europe and India to bridge the gap between education and industry. We need two kinds of skills to lead a happy and successful life: hard skills and soft skills. Soft skills are more difficult to acquire than hard skills. Most of the students are very good at hard skills but they are not very good at soft skills. We acquire hard skills (technical) through our education. Soft skills determine how happy and successful we are in our life. So soft skills are also called life skills, though they are a little different.

* Cherokee: A native North American

Soft skills are classified and divided in various ways. We can divide them into three major categories:

1. Communication skills: verbal and non-verbal.
2. Emotional skills: personal and inter-personal
3. Thinking skills: critical and creative.

Soft skills are necessary for all kinds of people in all kinds of professions. We are going to learn about them and start practising them in life.

Definition:

Soft Skills is a sociological term, which refers to the cluster of personality traits, social graces, felicity with language, personal habits, friendliness and optimism that mark people to varying degrees. Soft skills complement hard skills, which are the technical requirements of a job.

Soft skills involve:

1. Our ability to function harmoniously with others
2. Our openness to learning new ideas
3. Our tolerance to not-so-pleasant situations and differences in opinions
4. Our readiness to accept people from different cultures
5. Our willingness to make things work in our personal and professional life
6. Our ability to manage our own emotions
7. Our ability to deal with others by mapping their mood
8. Our ability to manage a situation by weighing its sensitivity and attuning our actions accordingly.

Soft skills can be acquired and enhanced by training, practice and observation.

Soft Skills vs Hard Skills

Sl. No.	Soft Skills	Hard Skills
1.	Informally imbibed	Acquired through formal education
2.	About relationships and social competence	About techniques, mechanisms and professional competence
3.	General attitude to life situations	Subject-based skills
4.	People-specific	Job-specific
5.	Attitude-centric	Aptitude-centric

Soft skills are interpersonal and intra-personal skills and they are objectively identified with a person's Emotional Quotient (EQ). This is a 'package' of skills related to personality development that includes social skills, communication and language skills, interpersonal habits, assertiveness, friendliness and optimism that demonstrate the relationship with the other. Soft skills do not necessarily mean only to enhance the professional quality of an employee. It will have a greater impact positively on a person's family and personal life as well.

Unlike core subjects which can be easily taught in a classroom, soft skills need more of practice and less of a theory. Practical training in soft skills enables a person to comfortably look for solutions for the daily issues from within oneself. Hence, it has become indispensable to get trained in soft skills, otherwise, we would be lagging behind in many ways. Soft skills can be developed over time.

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49. know yourself

Personal Profile- Student worksheet

Readers! Be honest, take a real loving look at yourself and your life till date and write down about yourself without inhibitions. Remember there is nothing RIGHT or WRONG about what you write as you are a unique person with unique capabilities. This profile sheet is useful in preparing CV and appearing for interviews. If you feel stuck then ask your teacher to give examples. Answer the following questions and try to write one or two complete sentences. After the sheet is filled, you have content enough for a two to five minute self-introduction. Practise it every day and try to improvise by adding more details.

1. Hello, I'm _____ (name)
2. I'm from / I come from _____ (place)
3. My father _____
   My mother _____
4. My siblings _____
5. I studied in _____
   (Schooling, Inter, college)
6. I am pursuing _____
7. I enjoy/ like _____
   (List 5 things you like doing)
8. I don't like _____
   (List 5 things you dislike doing)
9. I wish to learn _____
   (List 2 or 3 skills you would like to learn.)
10. I am _____
    (Morning person/ evening person/ night person- when are you very active and at what part of day do you study effectively?)
11. I wish to own _____
    (list 5 things you wish for ...)
12. In 2 years I see myself _____
13. In 5 years I see myself _____
14. My ambition now is : _____

15. My family and friends say I am _____

    And _____

    (list qualities- 5 positive and 5 negative i.e, where you feel you need to improve)

16. I am _____

    (other qualities- poet/ painter/ dancer/ sprinter/ college champion/ NSS volunteer/ NCC cadet/ ....)

17. I worked as _____

    (any part time jobs you did/ tuitions/ volunteer works/ summer jobs....)

18. My favorites _____

    (Game, sports person, politician, tourist spot, food, song, musician, film, director, actor, TV channel, serial, Radio program, book, writer...)

19. I am scared of _____ (list your fears)

20. I feel good about my _____ (list your strengths)

Post Writing Activity: Practise self introduction using this profile in the mirror. You need to look into your eyes while talking.

(See Lesson-1 **Self-Introduction** for practice)

SELF-ESTEEM: a check on your vision of self

1. When my feelings are hurt, I express this

   Never ☐ Sometimes ☐ Frequently ☐ Always ☐

2. Others value my opinions and agree with me

   Never ☐ Sometimes ☐ Frequently ☐ Always ☐

3. I feel intellectually capable

   Never ☐ Sometimes ☐ Frequently ☐ Always ☐

4. I feel worthy of the gifts that have been offered

   Never ☐ Sometimes ☐ Frequently ☐ Always ☐

5. I am satisfied with my personal development upto now

   Never ☐ Sometimes ☐ Frequently ☐ Always ☐

6. I consider comparing myself with other people (to see who rates higher) to be a waste of time

   Never ☐ Sometimes ☐ Frequently ☐ Always ☐

8. I feel comfortable at social gatherings and meeting new people

Never ☐ Sometimes ☐ Frequently ☐ Always ☐

9. I am happy to be my own self and would not want to be anyone else

Never ☐ Sometimes ☐ Frequently ☐ Always ☐

11. I am happy with the way I live my life

Never ☐ Sometimes ☐ Frequently ☐ Always ☐

12. I like my present place of residence

Never ☐ Sometimes ☐ Frequently ☐ Always ☐

13. I enjoy my work

Never ☐ Sometimes ☐ Frequently ☐ Always ☐

15. I am considerate of others

Never ☐ Sometimes ☐ Frequently ☐ Always ☐

16. I enjoy getting up in the morning

Never ☐ Sometimes ☐ Frequently ☐ Always ☐

17. I am self-reliant

Never ☐ Sometimes ☐ Frequently ☐ Always ☐

18. I make a positive contribution to the lives of others

Never ☐ Sometimes ☐ Frequently ☐ Always ☐

20. I try to make sure I lead balanced life- enough rest, work, play

Never ☐ Sometimes ☐ Frequently ☐ Always ☐

21. I enjoy my time alone

Never ☐ Sometimes ☐ Frequently ☐ Always ☐

22. I estimate myself honest by

Never ☐ Sometimes ☐ Frequently ☐ Always ☐

26. I see myself as attractive to the opposite sex

Never ☐ Sometimes ☐ Frequently ☐ Always ☐

30. I see myself as a successful person

Never ☐ Sometimes ☐ Frequently ☐ Always ☐

Your score: **Never-**

Sometimes-

Frequently-

Always-

Note: This test tells you what you think you are on the day you answer this at this moment, in this class. You might think different on another day. DO NOT consider the ratings as FINAL and judge yourself. The test only throws light on the areas where you need to stand up for self and improve your confidence. How do you do that? Don't miss the session on Positive attitude.

50. SWOT Analysis

SWOT stands for Strengths, Weaknesses, Opportunities, and Threats. SWOT analysis can be applied in various areas needing performance evaluation. A SWOT Analysis can be used for workshops, brainstorming, meetings, problem solving, product evaluation, strategic planning, competitor evaluation, personal development and planning. Similarly, this method can be used to assess your status in your college to help you find the right career to pursue. Here are a few ideas when it comes to constructing your SWOT.

To conduct a personal SWOT analysis effectively, know by heart how it is done, why is it done and the manner in which the findings are interpreted. The process requires answering to a set of questions that are relevant to your strengths, weaknesses, opportunities, and threats. Be realistic about strengths and weaknesses. When performing a SWOT analysis on yourself, be neither modest nor overly optimistic. Consider answers from the company's point of view and from the point of view of your teachers, friends and others who come to the campus to conduct drives. Distinguish between where you are today and where you could be in the future. Note that the SWOT is subjective. No two people will come up with the same SWOT.

Knowing Yourself Better

The best way to answer and get an efficient result is to answer the questions as honestly as you know yourself. It is significant that, as you reply to the questions, you also find out what other people think as your strengths and weaknesses. Keep your 'KNOW YOURSELF' worksheet with you for this session.

Internal Factors

1. **Strengths** - Internal positive aspects that are under control and upon which you may capitalize in planning for a new career. Answer the question: which are my most exceptional skills? These would include:
    - Work Experience
    - Education, including value-added features
    - Strong technical knowledge within your field (e.g. hardware, software, programming languages)
    - Specific transferable skills (e.g., communication, teamwork, leadership skills)
    - Personal characteristics (friendly nature/ adaptability/ positive outlook…)
2. **Weaknesses-** Therese are internal characteristics that are not so positive (need not be negative), but they can be worked on to improve. However, at the present moment these

may hinder your job prospects. Address your difficulties after comparing with others. These would include:

- Academic performance- less percentage, etc
- Lack of web skills- no e-mail account/ facebook id/ blog posts…
- Inability to take the initiative/ reserved nature/ over sensitivity
- Personal characteristics (short temper/ restlessness/ cannot do group work or work with preferred few…)

External Factors

3. **Opportunities** – External aspects that are not always in our control but can be tapped to build a career or secure a job. Address the issue of your interest in higher studies and get data of the colleges or universities that offer you these courses. List your chances.
   - The colleges/ universities that offer programmes of your interest
   - The companies which offer you job for your qualifications
   - Reservations/ special quota/ fee concession…
   - Campus drives/ special training programmmes at college…
4. **Threats** – External aspects that are not in our control and can hinder our prospects to secure a job/ seat in university. What factors stand in your way to get a degree/ PG seat/ Job? These could include:
   - Competition
   - Reservations/ lack of financial support
   - Family restrictions
   - Social conditions- bandhs/ no conveyance…

SWOT Analysis Worksheet

Name of the student:

Roll No:

Strengths	**Weaknesses**
What do you do well? What unique resources can you draw on? What do others see as your strengths?	What could you improve? Where do you have fewer resources than others? What are others likely to see as weaknesses?
Opportunities	**Threats**
What opportunities are open to you? What trends could you take advantage of? How can you turn your strengths into opportunities?	What threats could harm you? What is your competition doing? What threats do your weaknesses expose you to?

To do an honest check of your SWOT ask yourselves the following questions:

1. What are my positive points that my family and friends appreciate?
2. What is my academic record?
3. Am I involved in co-curricular/ extra- curricular activities?
4. My awards/ certificates- merit/ NSS/ NCC, etc.
5. What kind of a person am I?
6. Am I a leader or a team player? (student leader/Class rep….)
7. Do I attend all classes including special programmes?
8. Do I understand what experts say on MANA TV?
9. Do I understand when people speak in different accents?
10. Do I wish to participate in live programmes and convey my opinion properly in phone-ins?
11. Do I discuss my difficulties with my friends?
12. Do I handle my problems or avoid them and escape?
13. Do I share my issues openly or expect others to know it without my mentioning it?
14. Do I get cranky if my friends fail to understand me?
15. What stops me from participating in classroom activities?
16. What is this fear about that stops me from speaking in English?
17. Am I interested in learning new things?
18. Am I healthy? Physically fit with good stamina and energy?
19. Does my college cater to my needs? Do we have teachers/ infrastructure/ computers/ Internet/ opportunity to learn what you need?
20. To get my college degree, what factors stand in the way?

Interpreting the Gathered Data

After all the questions are answered, sit down and review the results. Assess your answers and relate it to your academic status/ job status using the results to choose the best academic career suitable for the person that you are. The following are some tips that can help you analyze and make your decision:

* Pick a course that capitalizes on your strengths
* An academic career can be an opportunity to make your weaknesses irrelevant by focusing on your strengths. This doesn't mean however that you need not face your weaknesses while pursuing your academic ambition but you can use it as a chance to strengthen your weaknesses. Attending workshops, seminars, group discussions, and other extracurricular activities will help you improve on your areas of weakness.
* Take advantage of all possible opportunities that will help your personal and academic traits excel.
* Threats are inevitable to each ones' ambitions and career perspectives. Identifying these threats however will provide a more focused solution as early as possible. When you are able to anticipate these threats using the information gathered, you will be able to prepare or avoid possible hurdles to your academic objective.

51. Goal Setting

"Take up one idea. Make that one idea your life; think of it, dream of it, live on that idea. Let the brain, the body the muscles, the nerves and every part of your body be full of that idea, and just leave every other idea alone. This is the way to success."

-Swami Vivekananda.

Many youngsters are not very clear about their goal in life. We cannot begin our journey unless we are clear about our destination. We cannot proceed even a step ahead unless we decide where we want to go. A clear-cut goal and a one-pointed concentration alone can help us to manifest tremendous confidence. We want to do many things simultaneously. Without singular devotion to the ideal, no great things can be achieved.

Read the following anecdote

Kalpana Chawla, born in a small town in Haryana, became the first Indian woman to travel in space only because she had fixed her goal when she was a child. Her biographer writes, "Kalpana would lie on her back and look at the glittering stars in the skies during summer nights. Presumably, this was what ignited her dream to journey into space. "She set her goal and never deviated from it though her advisers, parents and even the college principal tried to dissuade her from her choice of aeronautical engineering and suggested her that she go for more popular fields like mechanical or electrical engineering. But the young Kalpana refused to be convinced and finally achieved her goal overcoming all the obstacles in her way. Her one-pointed devotion to goal gave her the required confidence to succeed in life."

For many of us choosing a goal could be very confusing. It could be that everything or nothing interests us. It gets even more difficult when we cannot sustain the interest for long and the initial enthusiasm dies a quick death. To know what really interests could take time for many while the lucky few find their avocation as children like Kalpana Chawla did. Again do not judge yourself or your friends if they cannot decide on a goal/ career/ hobby. Be patient; keep trying out different things till you find your goal. Remember always to start with baby steps.

Ours is a unique world and each individual is created unique in this world. When it comes to planning future there are 6 major types of approaches according to Erial. Again the types are not THE types. We respond to a certain situation in any of the following ways depending on circumstances.

1. **Judgment callers** are people who choose not to set goals, either because they do not know what they want or they are ok with the way things are. They prefer to use judgment calls instead, which usually means that they pick the most urgent task on their to-do list and go with that. People like

this live in constant stress and struggle: reality hits – they react, problem arises – they solve it, boss demands – they perform. And it is not that they lack intelligence, determination or ability.

They just cannot find their inner drive. There is no goal in sight that lights up a fire in them and makes them care enough to take proactive steps, rather than being pushed by other people or circumstances.

2. **Terminators**- To us, regular mortals, it seems that these people are made of steel, as they possess an iron will and a laser-like focus. As soon as they select their goal, nothing can stop them from attaining it! While such determination is admirable, very often the easiest and smartest way of achieving something is to adjust the course of action and look for an open door, instead of bursting through walls to make an entrance.

   While 'terminators' usually achieve most goals they set for themselves, at times their stubbornness and inflexibility back-fires and they spend too much time and energy chasing after the wrong things unable to accept defeat or let go.

3. **Sufi's**- Sufi's are firm believers that everything that happens in life, happens for the better. They are focused on the spiritual part of their life and view material goals and "attachments" as a mere distraction from their true purpose.

4. **Sprinters**- This is the category where most people often find themselves. Sprinters get easily fired up by a new goal and just as easily leave it unfinished in a few couple of weeks, when their enthusiasm dies down. I call people in this category "sprinters", because they take a massive amount of action in the beginning, and quickly tire, unable to maintain the same level of motivation and productivity over a long period of time.

   For such people the key to success is consistency. Do not waste all of your energy and enthusiasm on one big leap of action. Most worth-while goals cannot be achieved in a week or two. They take time and require sustained effort and often lifestyle adjustments.

5. **Analytics**- Analytics believe that before they can start pursuing any kind of goal, they have to learn everything that they can possibly learn about goal-setting, motivation, economical situation, future challenges, possible benefits, and so on. Deep down they are perfectionists so they feel that unexplainable need to get it right the first time. They collect data, attend seminars, buy books about goal setting, evaluate, analyze, weigh the pros and cons and end up thinking themselves into analysis paralysis. Perfectionism, no matter in what form, is always a cause of two effects: over-preparation and under-performance.

It is just like staring at a chess board, making moves in your head, calculating various combinations of possible contra-moves to find the best game plan. In theory you might win the game. In practice you have not even started playing.

6. **Goal-Getters**- There is a small group of people, who just get goal setting. They have clarity and certainty about what they do and they do. They choose one goal and slowly, but surely work towards it. Sometimes they might even fail, but it does not stop them from trying again. Goal getters love what they do, yet they continuously educate themselves and try to learn even from their failures and mistakes. But unlike 'Analytics' they implement what they learn quickly and adjust their plans accordingly.

   Once you have identified your approach, try to adapt to Goal getter. How do you set a goal? For this you need to sit down and write what you want in life. Imagine a future, say 5 years from now, then 10 years from now and 20 years from now. How do you like to see yourself, where, doing what, possessing what? List it. For some it will take an entire day and for others a week or even a month to get that clarity.

Here are the steps in creating goals- (from mindtools.com)

You set your goals on a number of levels: Life time, short time (also known as long term, short term goals). After you have listed what you want in life, you break these down into the smaller and smaller targets that you must hit to reach your lifetime goals. Finally, once you have your plan, you start working on it to achieve these goals. This is why we start the process of goal setting by looking at your lifetime goals. Then, we work down to the things that you can do in, say, the next five years, then next year, next month, next week, and today, to start moving towards them.

Step **1: Setting Lifetime Goals**

The first step in setting personal goals is to consider what you want to achieve in your lifetime (or at least, by a significant and distant age in the future). Setting lifetime goals gives you the overall perspective that shapes all other aspects of your decision making. To give a broad, balanced coverage of all important areas in your life, try to set goals in some of the following categories (or in other categories of your own, where these are important to you):

- Career - What level do you want to reach in your career, or what do you want to achieve?
- Financial - How much do you want to earn, by what stage? How is this related to your career goals?
- Education - Is there any qualification or degree that you want to acquire in particular? What information and skills will you need to have in order to achieve other goals?

- Family - Do you want to be a parent? If so, how are you going to be a good parent? How do you want to be seen by a partner or by members of your extended family?
- Artistic - Do you want to achieve any artistic goals?
- Attitude - Is any part of your mindset holding you back? Is there any part of the way that you behave that upsets you? (If so, set a goal to improve your behavior or find a solution to the problem.)
- Physical - Are there any athletic goals that you want to achieve, or do you want good health deep into old age? What steps are you going to take to achieve this?
- Pleasure - How do you want to enjoy yourself? (You should ensure that some of your life is for you!)
- Public Service - Do you want to make the world a better place? If so, how?

Spend some time brainstorming these things, and then select one or more goals in each category that best reflect what you want to do. Then consider trimming again so that you have a small number of really significant goals that you can focus on. As you do this, make sure that the goals that you have set are ones that you genuinely want to achieve, not ones that your parents, family, or employers might want. You may also want to read our article on Personal Mission Statements. Crafting a personal mission statement can help bring your most important goals into sharp focus.

Step **2: Setting Smaller Goals**

Once you have set your lifetime goals, set a five-year plan of smaller goals that you need to complete if you are to reach your lifetime plan. Then create a one-year plan, six-month plan, and a one-month plan of progressively smaller goals that you should reach to achieve your lifetime goals. Each of these should be based on the previous plan. Then create a daily To-Do List of things that you should do today to work towards your lifetime goals. At an early stage, your smaller goals might be to read books and gather information on the achievement of your higher level goals. This will help you to improve the quality and realism of your goal setting.

Finally review your plans, and make sure that they fit the way in which you want to live your life. Staying on Course- Once you've decided on your first set of goals, keep the process going by reviewing and updating your To-Do List on a daily basis. Periodically review the longer term plans, and modify them to reflect your changing priorities and experience. (A good way of doing this is to schedule regular, repeating reviews using a computer-based diary.)

SMART Goals

A useful way of making goals more powerful is to use the SMART mnemonic. While there are plenty of variants (some of which we've included in parenthesis), SMART usually stands for:

- S - Specific (or Significant).
- M - Measurable (or Meaningful).
- A - Attainable (or Action-Oriented).
- R - Relevant (or Rewarding).
- T - Time-bound (or Trackable).

For example, instead of having "To sail around the world" as a goal, it's more powerful to say "To have completed my trip around the world by December 31, 2015." Obviously, this will only be attainable if a lot of preparation has been completed beforehand!

Mistake 1: Setting Unrealistic Goals

When you're exploring possible goals, you need to unleash your imagination and ambition, put your reservations aside, and dream big dreams. However, once you've decided on a goal, make sure that it is realistic, and that you can actually achieve it in the time frame that you have set for yourself.

Mistake 2: Focusing on Very Few Areas

When you set your goals, make sure that you strike the right balance between different areas of your life. And remember that "balance" is different for everyone – use the Wheel of Life tool to understand which areas of your life you need to focus on most.

Mistake 3: Underestimating Completion Time

How often has a task or project taken longer than you thought? Probably more times than you can count! You may also say the same for goals that you've set in the past. If you don't estimate goal completion time accurately, it can be discouraging when things take longer to achieve than you think they should. This can cause you to give up. If you have planned to complete the entire syllabus in 2 months studying 8 hours a day and for some reason you couldn't stick to the timetable, you find yourself not reaching the goal. If you add extra time into your estimate, you'll feel less pressure to rush and finish by a certain date.

Mistake 4: Not Appreciating Failure

No matter how hard you work, you will fail to achieve goals from time to time. We've all been there, and it isn't fun! However, your failures are what ultimately determine your character. They also contain lessons that can change your life for the best, if you have the courage to learn from them. So don't be too upset if you fail to achieve your goals – just take note of where you went wrong and use that knowledge to reach your goals next time around.

Mistake 5: Setting "Other People's Goals"

Some people – family, friends, or even your boss – may want to influence the goals you set. Perhaps they feel that they know what's best for you, or maybe they want you to take a certain path or do certain things. Clearly, it's important that you have good relationships with these people, and you need to do what your boss asks, within reason. However, your goals need to be your own – not anybody else's. So be politely assertive, and do what you want to do!

Mistake 6: Not Reviewing Progress

It takes time to accomplish goals. And sometimes it can feel that you are not making much progress. This is why it's important to take stock of everything that you have accomplished on a regular basis. Set small sub-goals, celebrate your successes, and analyze what you need to do to keep moving forward. No matter how slow things seem, you probably are making progress! You can also take this opportunity to update your goals, based on what you have learnt. Have your priorities changed? Or do you need to set aside some extra time for a particular goal activity? Goals are never set in stone, so don't be afraid to amend them if you need to.

Mistake 7: Setting "Negative" Goals

Many people have a goal to "lose weight." However, this goal has a negative connotation; it is focused on what you do not want – your weight. A positive way to reframe this goal is to say you want to "get healthy." Another example of a negative goal is to "stop staying late at work." A positive way to rephrase this is to "spend more time with family." Negative goals are emotionally unattractive, which makes it hard to focus on them. Reframe any negative goals so that they sound positive: you may be surprised by the difference this makes!

Mistake 8: Setting Too Many Goals

When you start setting goals, you may see many things that you want to accomplish. So you start setting goals in all areas. The problem with this is that you have a fixed amount time and energy. If you try to focus on many different goals at once, you can not give individual goals the attention they deserve. Instead, use the "quality, not quantity" rule when setting goals. Work out the relative importance of everything that you want to accomplish over the next six to twelve months. Then pick no more than, say, three goals to focus on. Remember, the success of your work towards a goal rests on focusing on just a few things at a time. If you limit the number of goals you are working on, you will have the time and energy you need to do things really well!

http:becomea better you in 365dats,com/tag/gral-setting-test.

52. Positive Attitude

Human beings can alter their lives by altering their attitudes - N. Vincent Peale

We can be positive or negative, enthusiastic or dull, active or passive. The biggest difference between people is their attitudes. For some, learning is enjoyable and exciting. For others, learning is drudgery. For many, learning is just okay, something required on the road to a job. Our present attitudes are habits, built from the feedback of parents, friends, society and self, that forms our self-image and our world-image. These attitudes are maintained by the inner conversations we constantly have with ourselves, both consciously and subconsciously.

One approach is called the **three C's: Commitment, Control and Challenge.**

Commitment: Make a positive commitment to yourself, to learning, work, family, friends, nature, and other worthwhile causes. Praise yourself and others. Dream of success. Be enthusiastic.

Control: Keep your mind focused on important things. Set goals and priorities for what you think and do. Visualize practising your actions. Develop a strategy for dealing with problems. Learn to relax. Enjoy successes. Be honest with yourself.

Challenge: Be courageous. Change and improve each day. Do your best and don't look back. See learning and change as opportunities. Try new things. Consider several options. Meet new people. Ask lots of questions. Keep track of your mental and physical health. Be optimistic. Studies show that people with these characteristics are winners in good times and survivors in hard times. Commitment, control and challenge help build self-esteem and promote positive thinking.

What is Positive Attitude?

Attitude is a mental position relative to a way of thinking or being; a positive attitude is, therefore, the inclination to generally be in an optimistic, hopeful state of mind. Attitudes which give happiness are 'Positive'.

7 Suggestions for Building Positive Attitudes

1. In every class, look for positive people to associate with.
2. In every lecture, look for one more interesting idea.
3. In every chapter, find one more concept important to you.
4. With every friend, explain a new idea you have just learned.
5. With every teacher, ask a question.
6. With yourself, keep a list of your goals, positive thoughts and actions.
7. Remember, you are what you think, you feel what you want.

The Power and benefits of Positive Attitude

Positive psychology studies indicate that a positive attitude, along with an optimistic outlook and positive thinking, can bring better health and greater happiness. Positive attitude, positive thinking, and optimism are now known to be the root cause of many positive life benefits--the good life and well being. You will live longer and be healthier and happier with a positive attitude toward life. In addition, you are more likely to be successful. Learn to use the power of thinking positive, adopting positive attitudes, and affirmations to gain important life benefits.

Characteristics of a Positive Attitude and Optimism:

Optimists believe that they are accountable for good things and good things will generally come their way. If something bad comes instead, optimists tend to write it off as an isolated incident, an anomaly, or something out of their control; optimists believe things will be better in the future. It is possible to control our thoughts, regardless of what we have been led to believe. As soon as a negative thought comes into your mind, purposefully make it a point to replace it with a positive one. Stop letting other people's negative attitudes influence yours. This may mean we need to stop hanging around with people who do nothing but spout negative stuff. We cannot afford to do this when our goal is to become more positive. "Will Power" is the Key.

53. Body Language

Body language is a form of non-verbal communication consisting of body pose, gestures, and eye movements. Humans send and interpret such signals subconsciously. Most of the researchers say that human communication consists of 93% body language and paralinguistic cues, while only 7% of communication consists of words themselves. While some people assert that between 60 and 70 percent of meaning is derived from nonverbal behavior, body language may provide clues as to the attitude or state of mind of a person. For example, it may indicate aggression, attentiveness, boredom, relaxed state, pleasure, amusement and intoxication among many other cues.

Understanding Body Language

The technique of 'reading' people is used frequently. For example, the idea of mirroring body language to put people at ease is commonly used in interviews. Mirroring the body language of someone else indicates that they are understood. Body language signals may have a goal other than communication.

Physical Expression

Physical expressions like waving, pointing, touching and slouching are all forms of nonverbal communication. The study of body movement and expression is known as kinesics. Humans move their bodies when communicating because, as research has shown, it helps "ease the mental effort when communication is difficult." Physical expressions reveal many things about the person using them. For example, gestures can emphasize a point or relay a message, posture can reveal boredom or great interest, and touch can convey encouragement or caution.

1. Shoulder Shrug Gesture

The shoulder shrug is also a good example of a universal gesture that is used to show that a person does not know or understand what you are talking about. It is a multiple gesture that has three main parts: exposed palms, hunched shoulders and raised brow

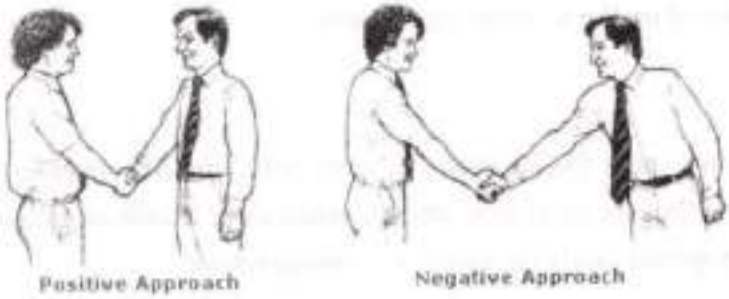
2. The Ring or 'OK' Gesture

The 'OK' meaning is common to all English-speaking countries and it means "All correct".

3. The Thumb-Up Gesture

The thumb-up/ thumbs-up gesture is used by hitch-hikers to ask for a lift and it is also used as an OK signal. When the thumb is jerked sharply upwards it becomes an insult signal. Often this gesture is shown to indicated 'good luck'.

4. Greeting each other



5. Shaking Hands

6. Special Handshakes

i.Double Handed Handshakes

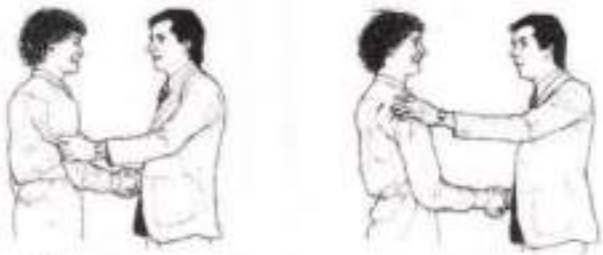
The wrist hold

The elbow grasp

The intention of the double-handed handshake is to show sincerity, trust or depth of feeling towards the receiver. Two significant elements should be noticed. Firstly, the left hand is used to communicate the extra feeling that the initiator wishes to transmit and its extent is related to the distance that the initiator's left hand is moved up the receiver's right arm.

ii. Elbow Grasp

The elbow grasp, transmits more feeling than the wrist hold, and the shoulder hold. In general, the wrist hold and the elbow grasp are acceptable only between close friends or relatives and in these cases, the initiator's left hand penetrates only the receiver's intimate zone.



The upper arm grip

The shoulder hold

iii. Shoulder Holds

The shoulder hold and the upper arm grip enter the receiver's close intimate zone and may involve actual body contact. They should be used only between people who experience a close emotional bond at the time of the handshake.

7. Rubbing the palms together

Positive Approach

Rubbing the palms together is a way in which people non-verbally communicate positive expectation.

8. Hands Clenched Together

Hands clenched in raised position

Hands clenched in middle position

Hands clenched in lower position

Research says that this was a frustration gesture, signalling that the person was holding back a negative attitude. The gesture has three main positions. The person would be more difficult to handle when the hands are held high, than he would be with the person whom hands resting on the desk position. Like all negative gestures, some action needs to be taken to unlock the person's fingers to expose the palms and the front of the body, or the hostile attitude will remain.

9. Steepling Hands

The raised steeple

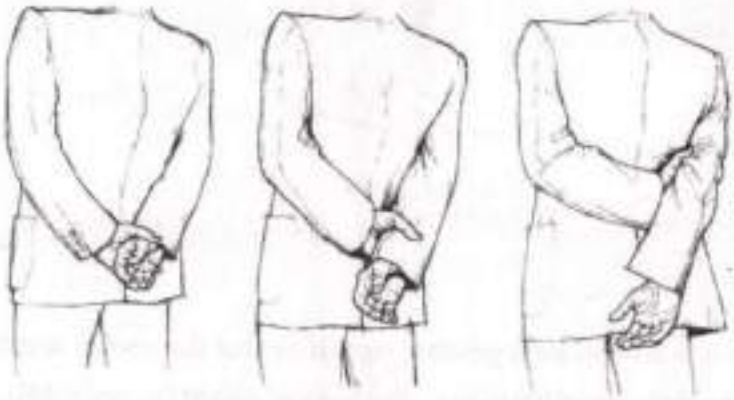
The lowered steeple

People who are confident, superior types or who use minimal or restricted body gestures often use this gesture, and, by doing so, they signal their confident attitude. It is frequently used in superior/subordinate interaction and that it can be an isolated gesture which indicates a confident or 'know-it-all' attitude. Managers often use this gesture position when giving instructions or advice to subordinates and it is particularly common among accountants, lawyers, managers and the like. The gesture has two versions,

The Raised Steeple - The position is normally taken when the steepler is giving his opinions or ideas and is doing the talking.

The Lowered Steeple - The position is normally used when the steepler is listening rather than speaking.

10. Gripping Hands, Arms and Wrists



The superiority confidence gesture

The hand-gripping wrist gesture

The upper arm grip

Superiority/Confidence Gesture - Several prominent male members of the British Royal Family are noted for their habit of walking with their head up, chin out and one palm gripping the other hand behind the back. Not only does British Royalty use this gesture; it is common among Royalty of many countries. On the local scene, the gesture is used by the policeman patrolling his beat, the headmaster of the local school when he is walking through the school yard, senior military personnel and others in a position of authority.

Hand-Gripping-Wrist Gesture - which is a signal of frustration and an attempt at self-control. In this ase one hand grips the other wrist or arm very tightly as if it is an attempt by one arm to prevent the other from striking out.

Upper Arm Grip Gesture - The further the hand is moved up the back, the more angry the person has become. He is showing a greater attempt at self-control than the man in Hand-Gripping-Wrist Gesture man, because the hand is gripping the upper arm, not just the wrist. It is this type of gesture that has given rise to such expressions as, 'Get a good grip on yourself'.

11. Thumb Displays

The dominant male The dominant female

The thumbs denote strength of character and ego and the non-verbal use of thumbs agrees with this. They are used to display dominance, superiority or even aggression; thumb gestures are secondary gestures, a supportive part of a gesture cluster. Thumb displays are positive signals, often used in the typical pose of the 'cool' manager who uses them in the presence of subordinates.

Dominant Male - Arms folded with thumbs pointing upwards is another popular thumb gesture position. This is a double signal, being that of a defensive or negative attitude, (folded arms) plus a superior attitude (displayed by the thumbs). The person using this double gesture usually gesticulates with his or her thumbs, and rocking on the balls of the feet when standing is common.

Dominant Female - Dominant or aggressive women also use this gesture. The women's movement has allowed them to adopt many male gestures and positions. In addition to all this, thumb thrusters will often rock on the balls of their feet to give the impression of extra height.

12. Hand to face gestures

i. The Mouth Guard

The mouth guard is one of the few adult gestures that is as obvious as a child's. The hand covers the mouth and the thumb is pressed against the cheek as the brain sub-consciously instructs it to try and suppress the deceitful words that are being said. Sometimes this gesture may only be several fingers over the mouth or even a closed fist, but its meaning remains the same.

Many people try to disguise the mouth guard gesture by giving a fake cough.If the person who is speaking uses this gesture, it indicates that he is telling a lie. If, however, he covers his mouth while you are speaking, it indicates that he feels you are lying!

ii. Nose Touching and Eye Rub

The nose touch

The eye rub

The Nose Touch - It is a sophisticated, disguised version of the mouth guard gesture. It may consist of several light rubs below the nose or it may be one quick, almost imperceptible touch. Like the mouth guard gesture, it can be used both by the speaker to disguise his own deceit and by the listener who doubts the speaker's words.

The Eye Rub - This gesture is the brain's attempt to block out the deceit, doubt or lie that it sees or to avoid having to look at the face of the person to whom he is telling the lie. Men usually rub their eyes vigorously and if the lie is a big one they will often look away, normally towards the floor. Women use a small, gentle rubbing motion just below the eye, either because they have been brought up to avoid making robust gestures, or to avoid smudging make-up. They also avoid a listener's gaze by looking at the ceiling.

iii. Ear Rub and Neck Scratch

The Ear Rub - This is, in effect, an attempt by the listener to 'hear no evil' in trying to block the words by putting the hand around or over the ear. This is the sophisticated adult version of the handsover-both-ears gesture used by the young child who wants to block out his parent's reprimands. Other variations of the ear rub gesture include rubbing the back of the ear, the finger drill (where the fingertip is screwed back and forth inside the ear), pulling at the earlobe or bending the entire ear forward to cover the earhole. This last gesture is a signal that the person has heard enough or may want to speak.

The ear rub

The neck scratch

The Neck Scratch - In this case, the index finger of the writing hand scratches below the earlobe, or may even scratch the side of the neck. This gesture is a signal of doubt or uncertainty and is characteristic of the person who says, "I'm not sure I agree." It is very noticeable when the verbal language contradicts it, for example, when the person says something like, "I can understand how you feel."

iv. Collar Pull Gesture and Fingers in the Mouth Gesture

The collar pull

Fingers in mouth

The Collar Pull - when a person is feeling angry or frustrated or sweating and needs to pull the collar away from his neck in an attempt to let the cool air circulate around it. When you see someone use this gesture, a question like, "Would you repeat that, please?" or, "Could you clarify that point, please?" can cause the would-be deceiver to give the game away.

Fingers in the Mouth - The fingers are placed in the mouth when a person is under pressure. Whereas most hand-to-mouth gestures involve lying or deception, the fingers-in-mouth gesture is an outward manifestation of an inner need for reassurance. Giving the person guarantees and assurances is appropriate when this gesture appears.

v. Cheek Gestures

Boredom Gesture

Interested, Evaluation Gesture

Boredom Gesture - When the listener begins to use his hand to support his head, it is a signal that boredom has set in and his supporting hand is an attempt to hold his head up to stop himself from falling asleep. Extreme boredom and lack of interest are shown when the head is fully supported by the hand.

Interested Gesture - Interested gesture is shown by a closed hand resting on the cheek, often with the index finger pointing upwards. Should the person begin to lose interest but wish to appear interested, for courtesy's sake, the position will alter slightly so that the heel of the palm supports the head. Genuine interest is shown when the hand is on the cheek, not used as a head support.

13. Arm barriers gestures

i. Standard Arm Cross Gesture

Standard arm cross

The standard arm-cross gesture is a universal gesture signifying the same defensive or negative attitude almost everywhere. It is commonly seen when a person is among strangers in public meetings, queues, cafeterias, elevators or anywhere that people feel uncertain or insecure.

ii. Reinforced Arm-Cross Gesture

Fist showing hostile attitude

The full arm-cross gesture the person has clenched fists, it indicates a hostile and defensive attitude. The person using this gesture cluster has an attacking attitude, as opposed to the person.

14. Leg barriers gestures

i. Standard Leg-Cross Position

The standard leg cross position

One leg is crossed neatly over the other, usually the right over the left. This is the normal crossed-leg position used by European, British, Australian and New Zealand cultures and may be used to show a nervous, reserved or defensive attitude.

For example, people often sit like this during lectures or if they are on uncomfortable chairs for long periods. When the crossed legs gesture is combined with crossed arms, the person has withdrawn from the conversation

ii. The Ankle-Lock Gesture

Male version of ankle lock Female version of ankle lock

Male Version of Ankle Lock - is often combined with clenched fists resting on the knees or with the hands tightly gripping the arms of the chair.

Femal Version of Ankle Lock - varies slightly the knees are held together, the feet may be to one side and the hands rest side by side or one on top of the other resting on the upper legs.

15. Popular gestures and actions

Head Gestures

Neutral head position Interested position Disapproval position

Neutral Head Position - The position taken by the person who has a neutral attitude about what he is hearing. The head usually remains still and may occasionally give small nods.

Interested Head Position - When the head tilts to one side it shows that interest has developed.

Disapproval Head Position - When the head is down, it signals that the attitude is negative and even judgmental. Critical evaluation clusters are normally made with the head down and, unless you can get the person's head up or tilted, you may have a communication problem.

16. Eye signal gestures

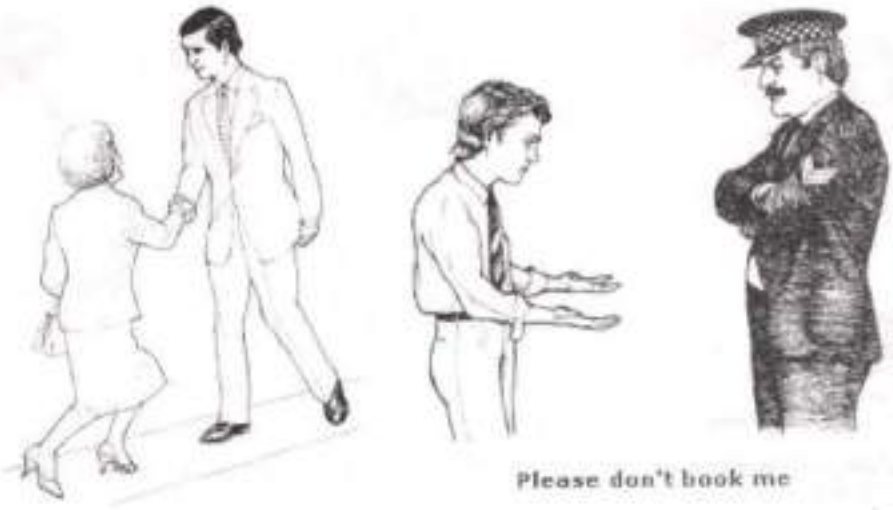
Controlling a person's gaze

Using the pen to keep control of person's gaze

When you are giving him a visual presentation using books, charts, graphs and so on. Research shows that of the information relayed to a person's brain, 87 per cent comes via the eyes, 9 percent via the ears, and 4 per cent via the other senses.

To maintain maximum control of his gaze, use a pen or pointer to point to the visual aid and at the same time verbalise what he sees. Next, lift the pen from the visual aid and hold it between his eyes and your own eyes. This has the magnetic effect of lifting his head so that he is looking at your eyes and now he sees and hears what you are saying, thus achieving maximum absorption of your message.

17. Body Lowering Gestures



Please don't book me

Your highness

Historically, lowering the height of one's body in front of another person has been used as a means of establishing superior/subordinate relationships. We refer to a member of Royalty as 'Your Highness', whereas individuals who commit unsavory acts are called 'low'.

Let us examine the non-verbal aspects of the situation in which you have been speeding in your car and are stopped by the policeman. In the situation,

1) The policeman approaches your vehicle, and a driver's usual reaction is to remain in the car, wind the window down and make excuses for having exceeded the speed limit.
2) By remaining in your car, you create a barrier between yourself and the policeman.
3) Under these circumstances the police officer is obviously in a superior position to you, this type of behaviour only serves to make things go from bad to worse and your chances of being booked are increased.

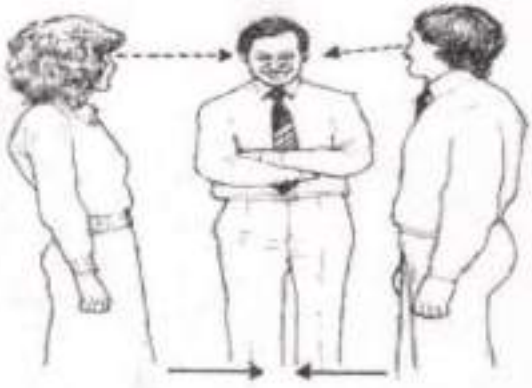
Instead, try this if you are flagged down:

1) Get immediately out of your car and go over to the police officer's car.
2) Stoop your body over so that you are smaller than he is.
3) Lower your own status by telling the officer how foolish and irresponsible you are and raise his status by thanking him.
4) With your palms out, in a trembling voice, ask him not to give you a challan.

When this technique is used as directed, it can save you from being booked more than 50 per cent of the time.

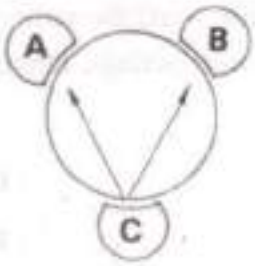
Inclusion and Exclusion Techniques

Open triangular position for accepting third person



Third person not accepted by first two

Interviewing Two People



Let us assume that you, person C, are going to interview or talk to persons A and B, and let us say that by either choice or circumstance you are sitting in a triangular position at a round table. Let us also assume that person A is very talkative and asks many questions and that person B remains silent throughout. When A asks you a question, how can you answer him and carry on a conversation without making B feel excluded? Use this simple but highly effective inclusion technique: when A asks a question, look at him as you begin to answer, then turn your head towards B, then back to A, then to B again until you make your final statement, looking at A (who asked the question) again as you finish your sentence. This technique lets B feel involved in the conversation and is particularly useful if you need to have B on side with you.

Foot Pointing Gesture

Feet signalling what's on the mind

The foot indicates the direction in which a person would like to go, but they are also used to point at people who are interesting or attractive. Imagine that you are at a social function and you notice a group of three men and one very attractive woman . The conversation seems to be dominated by the men and the woman is just listening.

You will also notice that she is giving a sideways glance to the man who is using the thumbs-in-belt gesture.

Examples of Body Language

They say a picture paints a thousand words – and the same can certainly be said for gestures. We all subconsciously give away hints as to our true feelings, through our movements and gestures. This is a list of 25 examples of body language.

1. Brisk, erect walk	: Confidence
2. Standing with hands on hips	: Readiness, aggression
3. Sitting with legs crossed, foot kicking slightly	: Boredom
4. Sitting, legs apart	: Open, relaxed
5. Arms crossed on chest	: Defensiveness
6. Walking with hands in pockets, shoulders hunched	: Dejection
7. Hand to cheek	: Evaluation, thinking
8. Touching, slightly rubbing nose	: Rejection, doubt, lying
9. Rubbing the eye	: Doubt, disbelief
10. Hands clasped behind back	: Anger, frustration, apprehension
11. Locked ankles	: Apprehension
12. Head resting in hand, eyes downcast	: Boredom
13. Rubbing hands	: Anticipation
14. Sitting with hands clasped behind head, legs crossed	: Confidence, superiority
15. Open palm	: Sincerity, openness, innocence
16. Pinching bridge of nose, eyes closed	: Negative evaluation
17. Tapping or drumming fingers	: Impatience
18. Steeping fingers	: Authoritative
19. Patting/fondling hair	: Lack of self-confidence; insecurity
20. Quickly tilted head	: Interest
21. Stroking chin	: Trying to make a decision
22. Looking down, face turned away Meaning	: Disbelief
23. Biting nails	: Insecurity, nervousness
24. Pulling or tugging at ear	: Indecision
25. Prolonged tilted head	: Boredom

ACTIVITY

1. **Column A** gives some typical behavior traits and **column B** expressions that can match them. Identify what expressions can match with the traits listed.

Column A	Column B
i. Turning up the nose	a. I don't believe you. I think it is impossible.
ii. Cracking the knuckles	b. I am energized. I am ready.
iii. Rubbing the nose	c. I want to be honest with you.
iv. Sitting on the edge of the chair	d. I want to emphasize this point. I am determined
v. Putting the feat on the table	e. I dislike this dish. I reject you opinion.
vi. Crossing the arms at the chest	f. I disagree with you. I have to fight to the end now.
vii. Placing the hands on the hips	g. I am nervous and uncomfortable. I wish I could leave the place.
viii. Pointing the index finger	h. I am bored now. I want to go on to the next item on the agenda.
ix. Placing both palms on the chest	i. I am different. I don't care about what you are saying.
x. Shrugging the shoulders	j. I'm the boss here.

References/Further Reading

1. Mohan, Krishna. Meera Banerji. Developing Communication Skills. 1990, Macmillan India Ltd., New Delhi.

2. Pease, Allan. Body Language: How to Read Others' Thoughts by Their Gestures. 2008, Competition Review Pvt. Ltd. New Delhi.

54. Interpersonal Skills

What are Interpersonal Skills?

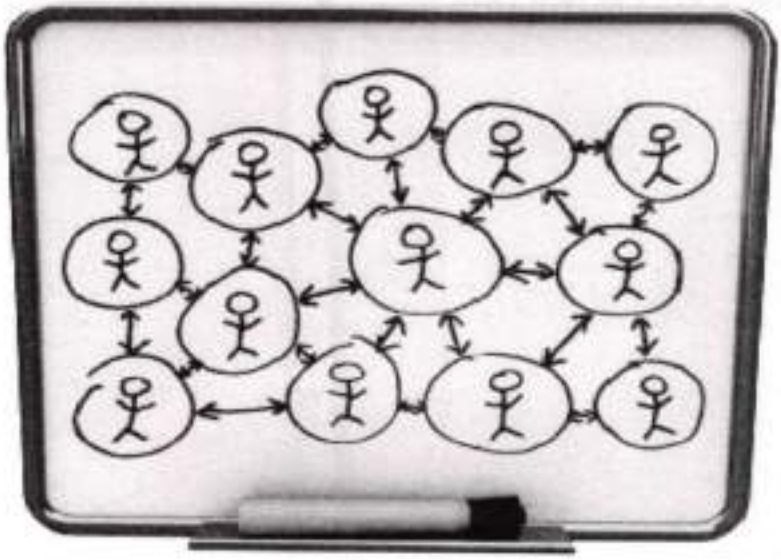
Interpersonal skills are the life skills we use everyday to communicate and interact with other people, individually and in groups. They are sometimes also referred to as *people skills*. Interpersonal skills involve skills such as active listening tone of voice, delegation and leadership, problem solving, decision making and personal stress management.

People with strong interpersonal skills are usually more successful in both their professional and personal lives. They are perceived as more calm, confident and charismatic-qualities that are often endearing or appealing to others. Awareness of your interpersonal skills can help you improve your personal relations.

Positive interpersonal skills increases the productivity in the organization since the number of conflicts is reduced. In informal situations, it allows communication to be easy and comfortable. People with good interpersonal skills can generally control the feelings that emerge in difficult situations and respond appropriately, instead of being overwhelmed by emotion. No matter how hard you work or how many brilliant ideas you may have, if you cannot connect with the people who work around, your life will suffer. Interpersonal skills help us to relate with others in a positive manner.

Activity No.1:

Look at the picture given below and note down some of your ideas. Share your ideas with the rest of the class.



1.

2.

3.

4.

5.

Activity No.2.

All of us meet and interact with people everyday. However, some people impress us with their behaviour and manners. They leave a very positive impression. Think of such a person from your own acquaintances and note down some of the reasons why he/she has impressed you.

1.

2.

3.

4.

The qualities that have impressed you are known as Interpersonal Skills. Now you know that a person is liked by others if he/she possesses strong interpersonal skills. However, not everyone is born with these qualities. The good news is that Interpersonal Skills can be acquired. In other words, we can learn them. These skills are easily further developed with a little more time and effort. Remember it is worth spending time in developing these skills as good interpersonal skills can improve many aspects of your life.

You can learn interpersonal skills the same way you learn other skills:

1. By observing others who practise them.
2. By practising the skill yourself.
3. Refining the skills until desired results are achieved.

Activity No.3:

Read the following incomplete statements and fill in the blanks choosing the appropriate word from the list of words given below. In pairs, compare your answers. Share with rest of the class.

(Stress, Listening, Verbal communication, Problem Solving Skills, Assertiveness, Negotiation, Team Work, Non-verbal communication, Empathy, Active listening, Decision Making.)

1. ----------is a response to an inappropriate level of pressure.
2. ----------is the ability to see the world as another person, to share and understand another person's feelings, needs, concerns and/or emotional state.
3. ----------not only means focusing fully on the speaker but also actively showing verbal and non-verbal signs of listening.
4. ---------- is the ability to assess different options/choices available regarding a particular situation and what consequences the different decisions may have.
5. ----------includes facial expressions, the tone and pitch of the voice, gestures displayed through body language and the physical distance between communicators
6. ---------- enable us to deal constructively with various problems in our lives.
7. ----------is working with a number of people towards a common goal and co-operating with one another.
8. ----------is a method by which people settle differences. It is a process by which compromise or agreement is reached while avoiding argument.
9. ----------means standing up for your personal rights - expressing thoughts, feelings and beliefs in direct, honest and appropriate ways.
10. ----------is dependent on a number of factors such as clarity of speech, remaining calm and focused, being polite and maintaining etiquette.

Activity No.4.

The following is a list of some of the most important Interpersonal Skills.

1. Listening Skills
2. Verbal and Non-Verbal Communication
3. Empathy
4. Teamwork
5. Assertiveness
6. Negotiation skills
7. Stress Management
8. Decision Making Skills
9. Problem Solving Skills

Individually, tick the skills that you think you possess. In pairs, compare your answers. Each pair shares its answers with rest of the class. As class, note down the skills that all of you have, those that only some of you have and those that none of you have. This exercise will help you to identify which skills are generally easier to learn and which need some efforts on your part.

All of us have	Some of us have	None of us have

Activity No.5.

Working in groups, discuss and list the benefits of possessing the interpersonal skills allotted to each group. Discuss and list the problems one would face if s/he did not have these skills. Make a presentation.

55. Time Management

Time management is the act or process of planning and exercising conscious control over the amount of time spent on specific activities, especially to increase effectiveness, efficiency or productivity. Time management may be aided by a range of skills, tools, and techniques used to manage time when accomplishing specific tasks, projects and goals complying with a due date. This set encompasses a wide scope of activities, and these include planning, allocating, setting goals, delegation, analysis of time spent, monitoring, organizing, scheduling, and prioritizing. Initially, time management referred to just business or work activities, but eventually the term broadened to include personal activities as well.

Creating an Effective Environment

Some time management literature stresses tasks related to the creation of an environment conducive to real effectiveness. These strategies include principles such as :

- "Get Organized" - paperwork and task triage
- "Protect Your Time" - insulate, isolate, delegate
- "Achieve through Goal management Goal Focus" - motivational
- "Recover from Bad Time Habits" - recovery from underlying psychological problems, e.g. procrastination

Procrastination: In psychology, procrastination refers to the act of replacing high-priority actions with tasks of lower priority, or doing something from which one derives enjoyment, and thus putting off important tasks to a later time.

Motivation: Motivation is the psychological feature that arouses an organism to action toward a desired goal and elicits, controls, and sustains certain goal directed behaviours.

Setting Priorities and Goals

Time management strategies are often associated with the recommendation to set personal goals. The literature stresses themes such as -

- "Work in Priority Order" - set goals and prioritize
- "Set Gravitational Goals" - that attract actions automatically

These goals are recorded and may be broken down into a project, an action plan, or a simple task list. For individual tasks or for goals, an importance rating may be established, deadlines may be set, and priorities assigned. This process results in a plan with a task list or a schedule or calendar of activities. The researchers recommend a daily, weekly, monthly or other planning periods associated with different scope of planning or review. This is done in various ways,

i. ABC analysis

A technique that has been used in business management for a long time is the categorization of large data into groups. These groups are often marked A, B, and C—hence the name. Activities are ranked upon these general criteria:

- A – Tasks that are perceived as being urgent and important,
- B – Tasks that are important but not urgent,
- C – Tasks that are neither urgent nor important.

Each group is then rank-ordered in priority. To further refine priority, some individuals choose to then force-rank all "B" items as either "A" or "C".

ii. The Eisenhower Method

	Urgent	Not Urgent
Important	Crying baby Kitchen fire Some Calls 1	2 Exercise Vocation Planning
Not Important	3 Interruptions Distractions Other Calls	4 Trivia Busy work Time Wasters

A basic "Eisenhower box" can help us evaluate urgency and importance of the activities. Items may be placed at more precise points within each quadrant.

All tasks are evaluated using the criteria important/unimportant and urgent/not urgent and kept in relevant quadrants. Tasks in unimportant/not urgent are dropped, tasks in important/urgent are done immediately and personally, tasks in unimportant/urgent are delegated and tasks in important/not urgent get an end date and are done personally. This method is said to have been used by U.S. President Dwight D. Eisenhower, and is outlined in a quote attributed to him: *What is important is seldom urgent and what is urgent is seldom important.*

Time Management Strategies for Improving Academic Performance

Many times college students have not had to manage their time efficiently prior to college because they were bright and were not really challenged in high school. The situation often changes in college because everyone who goes to college did well in high school but the full range of grades are assigned. Some students who received A's and B's in high school are now receiving C's and D's in college. Those who are receiving lower grades are probably no less capable than those who are receiving higher grades but often their study skills, including time management, are less effective.

Time Management Quiz

Answer each of the following questions:

1. Do you estimate how many hours you will need to study each week? ****** Yes/ No
2. Do you meet assignment deadlines? ***** Yes/ No
3. Do you begin working on semester long projects early in the semester? ****** Yes/ No
4. Do you set aside time for planning and scheduling? ****** Yes/ No
5. Do you write a daily "to do" list? ****** Yes/ No
6. Do you prevent social activities from interfering with your study time? ****** Yes/ No
7. Do you have a job that requires fewer than 10 hours a week? ****** Yes/ No
8. Do you set specific goals for each study period? ****** Yes/No
9. Do you begin your study time with your most difficult assignment? ****** Yes/No
10. Do you complete most of your studying during your most productive hours each day? *** Yes/No
11. Do you find yourself completing tasks at the last minute, or asking for extensions? *** Yes/No
12. Do you find you have to take work home, in order to get it done? ****** Yes/ No
13. Are you stressed about deadlines and commitments? ****** Yes/ No
14. Do you think of being a full-time student as you would a have full-time job? ****** Yes/ No

Four Steps for Better Time Management

There are four strategies that can be very useful for managing time more effectively. They are:

1. Create a semester schedule
2. Assess and plan your work load each week
3. Adjust your plan each day
4. Evaluate your schedule

Strategies for accomplishing each of these tasks will be discussed on the next few pages.

Where Does Time Go?

It may seem like there are not enough hours in the week to get everything done. That may be true or it may be that you are not using your time as efficiently as possible. To assess where your time goes, complete the inventory below. Be as honest with yourself as you can. Some of the items are done every day so those will need to be multiplied by 7 to arrive at a weekly total. One item may be done any number of times a week so you will need to multiply that one by the number of times each week you do it. After you have responded to all the questions, you will have an opportunity to see how many hours remain during the week for studying.

1. On the average, how many hours do you sleep in each 24 hour period, including those afternoon naps?
2. On the average, how many hours a day do you engage in grooming activities?
3. On the average, how many hours a day do you spend on meals, including preparation and clean-up time?
4. How much time do you spend commuting to and from campus and how many times do you do this during a week? Include the amount of time it takes to park and walk from your car or the bus stop to class.
5. On the average, how many hours a day do you spend doing errands?
6. On the average, how many hours do you spend each week doing co-curricular activities (student organizations, working out, church, etc.)?
7. On the average, how many hours a week do you work at a job?
8. How many hours do you spend in class each week?
9. On the average, how many hours per week do you spend with friends, going out, watching TV, going to parties, etc?

Now add the number of hours you are spending each week engaged in daily living activities and school activities. There are 168 hours in a week. Then Subtract to find out how many hours remain for studying, since this is not one of the activities included above.

WHAT DO I DO NEXT?

How many hours a week do I need for studying? Most of the universities recommend that students study at least two hours outside of class for every hour spent in class, although some recommend even more. Many students are taking 15 hours per semester, which probably means spending about 15 hours a week in class. Therefore, studying at least 30 hours a week outside of classes would be recommended. Combining the 15 hours a week in class and the 30 study hours outside of class, many students will need to plan to spend about 45 hours a week on school.

My assessment indicates that I don't have 30 hours a week to study but I need to study this much to make the grades I want to make. Can you reduce the amount of time spent on other activities? If you were going to reduce these hours, what would you have to do to make this change in your schedule? Can you eliminate one or more activities from your schedule? What could you eliminate?

I do have 30 or more hours a week to study but I don't use them effectively. The next page in this program discusses several strategies for making your schedule work more effectively. As you read this page, think about which of these strategies might be most helpful for making better use of your study time.

MAKING YOUR SCHEDULE WORK

Here are some strategies that you may find helpful to try if your schedule is not working as efficiently or effectively as you would like. When trying any new strategy, it is important to practise it regularly and to practise it long enough that you have a way of evaluating whether or not it is helping. Tests are good ways to evaluate new study strategies. If you begin a new strategy after one test on which you did not perform as well as you would like, try a new strategy until you receive the results of the next test to get an idea whether the new strategy is working for you.

1 Identify your best time of the day

Studying at your best time of the day, whether that is morning, afternoon, or early evening, will enable you to complete your assignments in less time. Research studies show that what we can accomplish in 60 minutes when we're less fatigued will take as much as 90 minutes to accomplish when we are more fatigued.

2 Study difficult or boring subjects first

Study subjects that are more of a challenge to you first when you are less fatigued. Save subjects you like to study for later, when you are feeling more tired but need to continue to study to keep up with your work. It will be easier to find the motivation to study something you find enjoyable when you are tired than for a subject you dread studying.

3 Use the same place to study every time

Studying in the same place each day is like going to class in the same room. You begin to associate a particular activity with a particular location so when you are in that location, you and able to focus on the task at hand more quickly. Studying on your bed or in your bedroom is not advised because you probably associate your bed and bedroom with sleeping, not studying. It's too easy to take those 10 minute naps that turn into 2 hour naps.

4 Use the library

Libraries are good places to study because this is the only activity we do in this environment. If there are reasons you choose not to use the library, try to find another location outside of your room that provides a good study environment and is relatively free of distractions.

5 Avoid distractions

Many things can provide a distraction to studying if we are looking for ways to procrastinate. Earlier in this program, you identified your top five time wasters. For the next few weeks, try to find ways to reduce the frequency with which these distracters are interfering with your study time. This might mean that finding another place to study would be helpful.

6 Use waiting time

If you use public transportation to commute to and from campus, there is probably some waiting time involved. This is a great time to study discrete pieces of information such as learning vocabulary for a foreign language class or memorizing a chemical reaction sequence. Write this information on note cards and carry them with you so you can study your cards during your waiting time.

7 Treat school as a full-time job

Try to accomplish as many of your school tasks as possible within a concentrated period of time, such as 8 a.m. - 5 p.m., Monday through Friday. If you use these hours either for attending class or studying, you'll have much more free time in the evenings and on the weekends to spend time with friends. Your classes are likely to get the amount of attention they require as well. It doesn't mean that you'll never need to study in the evenings or on the weekends because there will still be crunch times and you probably will. However, treating school as a full-time job and adopting the hours of a full-time job will probably result in better, more efficient management of your time.

56. Presentation Skills

INTRODUCTION

The words 'presentation' or 'presentation skill' are heard almost in every educational institution now-a-days. It seems that the present competitive world is also looking for the candidates who can present themselves in an effective way. The way you present yourself brings you either fame or shame. So it means that presentation is a way of communicating a piece of information to a group of people. So making oral or written presentations is a skill. Some people possess the skill instinctively while others develop it by practice.

It is no wonder that many people struggle to present effectively. In fact, the fear of public speaking is extremely common. However, you don't have to remain fearful and stressed by the thought of giving a presentation. With the right tools and material, along with good planning and preparation, you can present with energy and confidence.

Let's now look in detail at four key elements of effective presentations:

1. Understanding your audience.
2. Preparing your content.
3. Delivering confidently.
4. Controlling the environment.

Understanding Your Audience

The success of most presentations is generally judged on how the audience responds. One may think that one did a great job, but unless the audience gets convinced, that may not be a good presentation. Before you even begin putting your PowerPoint slides together, the first thing you need to do is understand what your audience wants. Try following these steps:

- Determine who the members of the audience are.
- Find out what they want and expect from your presentation. What do they need to learn?
- Do they have entrenched attitudes or interests that you need to respect?
- And what do they already know that you don't have to repeat?
- Create an outline for your presentation, and ask for advance feedback on your proposed content.

When your audience is satisfied, it doesn't matter if your delivery wasn't absolutely perfect. The primary goal of the people listening to your presentation is to get the information they need. When that happens, you've done a good job.

Preparing Your Content:

The only way to satisfy your audience's needs and expectations is to deliver the content they want. That means understanding what to present, and how to present it. Bear in mind that if you give the right information in the wrong sequence, this may leave the audience confused, frustrated, or bored. There are a variety of ways to structure your content, depending on the type of presentation you'll give. Here are some principles that you can apply: identify a few key points, do not include every detail, use an outline, start and end strongly and use examples.

Delivering Confidently

Even the best content can be ineffective if your presentation style detracts from your message. Many people are nervous when they present - so this will probably affect your delivery - but it's the major distraction that you want to avoid. As you build confidence, you can gradually eliminate the small and unconstructive habits you may have. You Practise thoroughly to build confidence, be flexible, welcome statements from the audience, use slides and other visual aids, keep your visuals simple and brief and manage your stress.

Controlling the Environment

While much of the outside environment is beyond your control, there are still some things you can do to reduce potential risks to your presentation.

Practice in the Presentation Room: This forces you to become familiar with the room and the equipment. It will not only build your confidence, but also help you identify sources of risk.

Do Your Own Setup: Don't leave this to other people. Even though you probably want to focus on numerous other details, it's a good idea not to delegate too much of the preparation to others. You need the hands-on experience to make sure nothing disastrous happens at the real event.

Test Your Timing: When you practice, you also improve your chances of keeping to time. You get a good idea how long each part of the presentation will actually take, and this helps you plan how much time you'll have for statements and other audience interactions.

Key Points

Presenting does not have to be scary, or something you seek to avoid. Find opportunities to practice the tips and techniques discussed above, and become more confident in your ability to present your ideas to an audience. After all, we all have something important to say, and sometimes it takes more than a memo or report to communicate it. You owe it to yourself, and your organization, to develop the skills you need to present your ideas clearly, purposefully, engagingly, and confidently.

For Excellent Presentation follow the 5 Ps and achieve success.

Prepare

Practice

Perfect

Perform

Prosper

STRUCTURE OF THE PRESENTATION

To make one's presentation persuasive the content of the presentation must be logically arranged, even if there is some occasional digression for adding spice to it. The whole presentation must be structured: there should be an effective opening, main body, a review at the end of each session, effective conclusion followed by questions and answers.

SIGNPOST EXPRESSIONS

During the presentation when you move from one point to the other it is very essential that you need to guide your audience by using some linking expressions which are called signpost expressions. Though it is not very difficult to learn them one needs to memorize them in order to use them properly. When we are going to the next point usually we say: "I'd like to move on/go on to the next point if there are no further questions." Likewise here are some useful signpost expressions: 'turn to,' 'expand,' 'go back,' 'summarize,' 'recap' and 'conclude.'

SURVIVAL LANGUAGE

Sometimes you may go wrong or might have forgotten an important point during your presentation. Do not panic. Just take a pause and correct yourself: "I'm sorry. What I mean to say is this" or "I'm sorry, I should/I would like to add an important point here." Concentrate on the Body language as you learnt before.

Conclusion

The content of your presentation, visual aids, body language, voice and the audience are important. But even more important is you, the presenter. Pay attention to yourself. Be well dressed and that too be formally dressed. Though the style of your presentation may be informal, the occasion demands a formal attire. Hence see that you are presentable and then your presentation is accepted.

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57. Just A Minute (J A M) Activities

What is JAM?

JAM is a Rapid Action Activity aimed at determining the skills of the student in Readiness, Versatility, Knowledge, Creativity, Imagination, Expression, Brevity, Fluency, Presentation, Articulation, Composure, Organization etc. The objective of this activity is to provide / assess better listening, thinking and speaking training in a fun environment.

How is it Conducted?

- Several Contemporary and relevant topics are written on pieces of paper and rolled up.
- All of them are placed together in a bowl.
- Each student is asked to pick up a roll.
- They will be given only 2 minutes to organize their speech which has to be delivered in 'Just A Minute'.

TIPS:

How to Get Ready?

The moment you are given the piece of rolled paper……

- Stay Calm. Don't get either excited or anxious.
- Open when you are asked to.
- Organize your 2 minutes (or What ever time you are given) for preparation.
- Read the topic twice and brain strong
- Question the topic with 6 Friends. (What, When, Where, Who, Why and How)
- Organize the Answers you get on questioning the topic with 6 Friends in a Logical, Sequential, Chronological and Prioritized manner.
- Remember the Key Words.
- Memorize them.

PRESENTATION

- Get up from your seat when you are asked to.
- Walk gently to the podium.
- Wait for the Time-Keeper to give you the signal to commence.
- Deliver with confidence.
- Don't waste your precious moments in salutation and formalities; Be Brief.

Check Your Speaking Skills

- Speech rate -- is it too fast or too slow?
- Enunciation (articulation) -- do you mumble? Could you understand every word?
- Tone -- -- is your voice modulated, not a monotone?
- Pitch -- is the sound or level of your voice comfortable; not too high or too low?
- Volume -- too soft, too loud? Vary the volume for emphasis on important words
- Breathing or phrasing - do you breathe in the middle of a sentence? are your pauses too long?
- Habits -- do you say .you know,. .okay,. .huh,. .um,. etc.?

Non-Verbal Factors

- Eye contact -- are you just looking at your notes or are you making contact with everyone?
- Gestures -- do your body gestures reinforce points or are they distracting?
- Posture -- good, bad, distracting?
- Movement -- do you stay in one place, move or pace? Is is helpful or distracting?
- Facial expressions -- do you show emotion at appropriate times?

Content

- Clarity -- is the information presented clearly? Is the point of your speech easily understood?
- Vocabulary -- is your word choice appropriate for the intended audience?

Organization -- is the material well organized and flows smoothly?

58. Team Dynamics

Coming together is a beginning.
Keeping together is progress.
Working together is success.

- Henry Ford

Introduction:

In building successful organizations, Teams play very important role. Whether the focus of the organization is on service, quality, cost, value, speed, efficiency, performance, or other similar goals, teams are the basic units that help the organizations realize their goals. The success of an organization depends on how well its team members work together. Hence, as students who intend to join in big organizations, you should have a basic understanding about the formation, functioning and dynamics of teams. This knowledge will also help you in performing well in your academic assignments and project works where you are expected to work along with your fellow students.

Definition of 'Team' & Ground Rules for Team:

A team is "a group of people with a high degree of interdependence geared toward the achievement of a goal or the completion of a task."

The above said definitions mean that members of a team agree on a common goal and agree that the only way to achieve that goal is to work together. Some groups have a common goal but they don't work together to achieve it. Some groups work together but they don't have a common goal. Any team has to function as per a code of conduct and a set of ground rules, which are mutually agreed by the members. A Model Code of Conduct and some Ground Rules are provided below for your understanding:

A Model Code of Conduct

As a team we will:

- Be proactive and positive
- Keep other team members informed
- Focus on what is best for the team as a whole

Ground Rules:

- Be respectful, fair, and honest in all communications
- Encourage opinions and discussion from all members
- Be open to new approaches and listen to new ideas
- Look at conflict and change positively
- Work together to achieve maximum results
- Follow best practices for decision making, communication, and meeting management
- Celebrate accomplishments and milestones

Types of Teams:

Based on the purposes, goals and objectives, teams can be of different types as shown below:

1. **Natural Work Groups:** This is a group of people who work together each day in the same location, using the same machines and processes. The supervisor is in charge, but they may allow other team members to take the leadership role.
2. **Business Team:** Often a cross-functional team that looks after a specific product line or service.
3. **Management Team:** A group of managers and the person they report to.
4. **Virtual and Remote Teams:** With this type of team, members see one another in person rarely or not at all. They connect most frequently using web portals, the Internet, telephone, and e-mail.
5. **Self-Managed Team:** This is a group of people who manage themselves. No one person in the group has the authority to make all the decisions about the events that impact the group. This is also referred to as a self-directed **work team** because everyone has authority and responsibility for all the decisions they have to make.
6. **Product/Service Design Teams:** This is a group that comes together for a specific time to work on a special project or task. This group has traditionally been called a task force or committee. They are usually a cross-functional group assigned to design or redesign a product or service.

Building Trust in Teams:

Trust lays the strong foundation for a successful team building. The team members should develop mutual trust and believe that other members have skills and capabilities to contribute to the team. To create a climate of trust in the Team, there should be honesty, integrity, openness, consistency i.e., predictable behavior and responses, etc. among the team members. The members should be willing to share and receive information, perceptions, opinions and ideas from fellow members. They should treat one another with dignity and fairness.

Tips for Building Trust:

Here are some ways through which members can build trust with their team:

- Doing what he promises to do
- Treating everyone fairly
- Being consistent in his behavior and response
- Going to support his fellow members
- Build relationships by learning more about other team members, including their likes and dislikes
- Doing social things together
- Creating a "we" atmosphere instead of 'I' atmosphere

Role of Leader in Team Building:

In the success of Teams, Leader plays a key role. The leader could be a formal one who is appointed or thrusted upon, or he could be an informal leader who naturally emerges out of the team members. The following points will help in understanding the concept of leadership and leadership qualities.

Leadership: Defining Leadership is not an easy task. But, we can identify the importance of leadership in teambuilding. Give the examples of national leaders such as Mahatma Gandhi who could influence the whole India to fight against the British rule with the simple yet powerful weapons of Satyagraha, Non-cooperation and Non-violence.

Leadership qualities: Becoming a leader does not mean showing authority. But it is a constant process of self-evaluation and learning. In order to become a good leader, one must imbibe some of the following qualities:

i. Positive attitude
ii. Creativity
iii. Intelligence
iv. A futuristic vision
v. The ability to stimulate, excite and motivate others
vi. Flexibility
vii. Honesty and integrity
viii. Belief in delegation and trust in team members
ix. Accepting and inviting criticism and feedback
x. Reliable and empathetic towards his team members.

Importance of Communication in Team Building:

Communication plays very important role in building and sustaining successful teams. In a team environment, how you say is more important than what you say.

Some tips for establishing proper communication in team environment:

1. The goals, objectives of the team should be communicated clearly
2. The roles and responsibilities of the members and leader should be communicated well in advance
3. There must be an open and honest environment for communicating everyone's ideas, opinions and objections
4. The members should listen attentively to their fellow members
5. Consensus should be the objective of communication
6. Productive and qualitative communication should be maintained
7. Information and Communication technology can be used for reducing the time and geographical limitations
8. One has to listen attentively.

Tips for effective Teamwork Skills:

The following tips will help you become better and effective Team members:

1. The members should make sure that they understand the team's goals, objectives and timeframes as clearly as possible.
2. The members should know their goals, role and responsibilities in relation to the team.
3. Contribution of every member is important and makes a lot of difference
4. Members should respect others' opinions, perspectives, thoughts, views, habits and cultures even if they are different them.
5. Every member should support and help others voluntarily.
6. Members should give and take constructive feedback.
7. Members should share their knowledge and expertise.
8. Acknowledge and appreciate others' contribution
9. Show empathy when resolving differences or conflicts. Avoid the tendency of misunderstanding others.
10. Manage the conflicts within the team effectively.
11. Do not form any pre-conceived notions about other members' abilities based on certain assumptions
12. Provide coaching, mentoring to other needy members

--:O:--

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59. Group Discussion

The Group discussion tests how you function as a part of a team. As a manager, you will always be working in teams, as a leader or as a member. So, how you interact in a team becomes an important reason for your selection. Managers have to work in a team and get best results out of teamwork. That is the reason why management institutes include GD as a component of the selection procedure.

Companies conduct Group Discussion after the written test to check your interactive skills and how good you are at communicating with other people. It is to check how you participate and contribute in a group, how you behave, how much importance you give to the group objective as well as your own, how open-minded are you in accepting views contrary to your own and how well do you listen to view points of others. The aspects which make up a GD are conformation to norms, verbal communication, decision-making ability, non-verbal behavior and cooperation. You should try to be as true as possible to these aspects.

A Group Discussion Focuses on:

1. Communication Skills
2. Team Skills
3. Negotiation Skills and your
4. Knowledge and ideas regarding a given subject

How to Address?

In a group discussion it is not necessary to address anyone by name. It is always better to address the group as a whole.

Communication Skills:

In a group discussion, a candidate has to present effectively to convince others. For convincing, one has to speak forcefully and at the same time create an impact by his knowledge of the subject. A candidate who is successful in holding the attention of the audience creates a positive impact.

It is necessary that you should be precise and clear. As a rule evaluators do not look for the pompous vocabulary. Your knowledge on a given subject, your precision, and clarity of thought are the things that are evaluated. You should be able to convey your thoughts satisfactorily and convincingly before a group of people.

Capability to Co-ordinate and Lead:

The basic aim of a group discussion is to judge a candidate's leadership qualities. Once the discussion starts, the examiner withdraws and becomes a silent spectator. A candidate should display skill, understanding, knowledge, and tactfulness on varied topics, forcefulness, enterprise and other leadership qualities to influence and motivate other candidates who may be almost equally competent.

Exchange of Thoughts:

A group discussion is an exchange of thoughts and ideas among members of a group. These discussions are held for selecting personnel in organizations where there is a high level of competition. The number of participants in a group can be between 5 and 15. Mostly a topic is given to group members who have to discuss it within 10 to 20 minutes.

The reason is to get an idea about candidates in a short time and make assessments about their skills, which normally cannot be evaluated in an interview. These skills may be leadership skills, team member skills, articulation skills, and listening skills.

Knowledge and Ideas Regarding a Given Subject:

Knowledge of the subject under discussion and clarity of ideas are important. Knowledge comes from consistent reading of various topics ranging from science and technology to politics. In-depth knowledge makes one confident and enthusiastic and this in turn, makes one sound, convincing and confident.

Thorough Preparation:

Start making preparations for interview and group discussions from now, without waiting till the eleventh hour. Then the time left may not be adequate. It is important to concentrate on subject knowledge and general awareness. Hence, the prime need for thorough preparation.

In a group discussion you may be given a topic and asked to express your views on it. Or in a case study GD, students have to read a case study and suggest ways of tackling the problem. For this you should have a good general knowledge, need to be abreast of current affairs, should regularly read newspapers and magazines. Your group behavior and communication skills are on test.

Do's and Dont's in Group Discussion

Do's

- Be as natural as possible. Do not try and be someone you are not. Be yourself.
- A group discussion is your chance to be more vocal. The evaluator wants to hear you speak.
- Take time to organize your thoughts. Think of what you are going to say.
- Seek clarification if you have any doubts regarding the subject.
- Don't start speaking until you have clearly understood and analyzed the subject.
- Work out various strategies to help you make an entry: initiate the discussion or agree with someone else's point and then move onto express your views.
- Opening the discussion is not the only way of gaining attention and recognition. If you do not give valuable insights during the discussion, all your efforts of initiating the discussion will be in vain.

- Your body language says a lot about you. Your gestures and mannerisms are more likely to reflect your attitude than what you say.
- Language skills are important only to the effect as to how you get your points across clearly and fluently.
- Be assertive not dominating; try to maintain a balanced tone in your discussion and analysis.
- Don't lose your cool if anyone says anything you object to. The key is to stay objective: Don't take the discussion personally.
- Always be polite: Try to avoid using extreme phrases like: 'I strongly object' or 'I disagree'. Instead try phrases like: 'I would like to share my views on…' or 'One difference between your point and mine…' or "I beg to differ with you"
- Brush up on your leadership skills; motivate the other members of the team to speak. Be receptive to others' opinions and do not be aggressive.
- If you have a group of like-minded friends, you can have a mock group discussion where you can learn from each other through giving and receiving feedback.
- Apart from the above points, the panel will also judge team members for their alertness and presence of mind, problem-solving abilities, ability to work as a team without alienating certain members, and creativity.

DON'Ts

- **DON'T** Lose your temper. A discussion is not an argument.
- **DON'T** Shout. Use a moderate tone and medium pitch.
- **DON'T** Use too many gestures when you speak. Gestures like finger pointing and table thumping can appear aggressive.
- **DON'T** Dominate the discussion. Confident speakers should allow quieter students a chance to contribute.
- **DON'T** Draw too much on personal experience or anecdote. Although some tutors encourage students to reflect on their own experience, remember not to generalize too much.
- **DON'T** Interrupt. Wait for a speaker to finish what they are saying before you speak.

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60. Etiquette of Telephone, e-mail and SMS

1. Introduction:

The present economy is a knowledge based economy, which is driven by Information and Communication Technology. To be competitive and reach top position, the industries and organisations have to find the ways of implementing Information Technology (I.T.) enabled communication systems. The use of Internet, Computers, Telephones and Mobile phones help the organisations access the information widely and utilize it effectively. However, organisations should develop policies to guide employees on the proper use of the latest Information Technology and electronic communicative tools such as Telephoning, Electronic mail (e-mail) and Short Messaging Service (SMS). Like the general work place etiquette (manners), Telephone, E-mail and SMS etiquette also have gained importance due to increased use of Telecommunications, Internet and Mobile phones in official communication system.

Further, as students who aspire for jobs in the I.T. and other New economy industries, you should understand the proper use of Telephone, e-mail and SMS for making job enquiries, sending your C.Vs., taking interview calls and other employment related information. Keeping this aspect in view, this module has been prepared to provide you the basic understanding about the Telephone, e-mail and SMS etiquette.

2. 'Etiquette':

Before trying to understand different types of etiquette related to Information and Communication Technology, you must first understand what the 'Etiquette' itself means. 'Etiquette' can be defined as the system of rules and conventions that regulate social and professional behaviour. In any social unit or organisation, there will be some accepted rules of behaviour which are upheld and enforced by legal codes; there will also be norms of behaviour mandated by custom and enforced by group pressure. The second set of behaviours only is called as etiquette. Violation of etiquette does not attract any formal trial or penalty. But, the persons who violate etiquette generally attract the disapproval of other members of the group. There could be different types of etiquette such as Social etiquette, Business etiquette, Email etiquette, Telephone etiquette and SMS etiquette, etc. But, the present discussion limits itself to the three areas namely – Email Etiquette, Telephone and SMS etiquette.

3. e-mail Etiquette:

Emergence and Rise of e-Mail as a Potential Communication Tool:

With the advent of the World Wide Web (WWW) or in other way called Internet during the 1990s, email emerged as the business and social phenomena. It is true to say that email has revolutionised business communication. It is indeed rapidly replacing the phone as the method of communication of choice for many workers. e-mail is now also integrated into other forms of business information - whether being used to transfer documents, co-ordinate diaries, or keep track of project milestones.

Range of functions where e-mail is used:

Due to its universal presence and flexibility, email is routinely used for a wide variety of purposes which include

- sharing information and documents
- Requesting information, asking questions
- Planning Social events, holding discussions
- Planning Business meetings, assigning tasks, etc.

What is 'e-mail Etiquette'?:

e-mail etiquette refers to a set of do's and don'ts that are recommended by business and communication experts for appropriate and effective use of e-mail as a Communication tool.

Importance of e-mail Etiquette:

In the present day organisations, e-mail became the main mode of communication. Like any written communication, e-mail message also does not have non-verbal expression to support or supplement what we are saying. In the face-to-face communication, we make judgments about a person's motives and intentions based on their tone of voice, gestures, and their closeness to us. But it is not possible in a written communication. It is much more difficult in email. Further, in the oral communication, we get the listener's feedback by their acceptance or rejection or seeking for clarification. But, the written communication does not get immediate feedback. Hence it is more important to take care of the written correspondence. Therefore, etiquette or good manners play an important role in e-mail communication.

Considerations for e-mail etiquette:

(A) Formatting e-mail:

One must be familiar with the general rules about formatting. Further, most organisations today have an element of standardization. Hence, its employees should practice the standards defined by their organisation.

Some formatting tips are as follows:

1. The email should be kept brief (preferably not exceeding one page) so that readers do not have to scroll.
2. E-mails should be replied promptly. E-mails also need to be returned on the same day as is done in the case of phone calls.
3. Capitalization and punctuation should be used in the same way as is done in any other document.
4. It is better to format email to be sent in plain text rather than HTML.
5. A salutation or greeting should be written for each new subject email. However, if several emails are exchanged over the same topic, it is not necessary to include a greeting in every mail.
6. It is important to write an appropriate and specific subject in the subject line so that the recipient knows what to expect. For example, if a person is responding to specific Job advertisement, say Management trainee in Computers Division in BHEL, Hyderabad, the email should say 'Application for Management Trainee in Computers Division in BHEL, Hyderabad'.

(B) Keep the Receiver of the e-mail in mind:

It is always important to know who will receive the email so that the tone of the email differs accordingly. For example, emails that are sent to an employer or customer may be more formal and brief than to a classmate, colleague or a friend. It also helps in deciding whether we need to use a person's title or his name. Further, when we send emails to more than four people regularly, it is better to create mailing groups so that the recipients do not need to scroll through names before they can get to the content of the email. It also helps to keep some email addresses anonymous, as some may not like their email addresses to be seen by some strangers.

Salutations:

To be on safe side, even in e-mails also, it is better to follow the general formalities regarding salutations. In a non-business situations/ informal and personal situations, you can avoid following the

formalities. That is, you can address the person as 'Dear Prasad', or just 'Prasad'. But, in the business /formal situations, it is better to follow the rules we observe in written correspondence. If you normally address a person Miss./Mrs. /Ms./Mr. Prasad, then the same may be followed in emails too.

(C) e-mail is a Public Document:

e-mails are public documents, despite the fact that we may send an email to someone privately. Therefore, those statements that can be openly defended only should be included in email. There is every chance of using the e-mail as evidence or circulating it to other parties. Hence, one's personal emotions, opinions, feelings, likes and dislikes should not be included in a formal mail.

(D) Use of Emoticons:

Using emoticons (smiley faces, winks, etc.) and other virtual gestures may be appropriate in case of sending mails to friends and relatives, but not in the case of formal emails. The sender should always consider the type of relationship he has with the receiver of his mail/ message before including virtual non-verbal elements in the email. If his relationship with the sender is more casual, then using the symbols is fine. But, if his relationship is more official or formal, then it is better to refrain from using them.

(E) Sending Attachments:

Sending attachments is a normal practice when documents are submitted for review or exchanging information in the work place. As students, you may also need to submit your project reports, Resumes, etc., as attachments. While sending documents as attachments, the following tips may be of help:

1. The document that is being attached has to be titled appropriately. Then, it will be easy for the recipient to locate it once he or she downloads it to his or her files. For example, when a person sends his Resume as an attachment to an email, he should title that along with his name. That is, titling as 'Resume-Srinivas' is more appropriate than titling as either just 'Resume' or 'Srinivas'.
2. In the content of the email, the recipient may be informed about the software used to create the document, the year, version, and the title of the attachment. For example: "The file attached is named 'projectreport.doc' and it is in 'MSWord XP'.
3. Before sending large attachments, one should make sure that the recipient's Internet connection and email client can handle them.
4. If all the relevant information is presented in an email message, there is no requirement to attach a word document repeating the same information.

(F) Length of an e-mail:

In general, the email should be approximately one page printed or the length of your computer screen before scrolling. However, there are times when email messages need to be longer to convey important information. Often organisations seeking to reduce their paper costs will use email as their primary source of communication. Longer emails generally consist of orientation schedules and information, memos, convention information, newsletters, and policy changes.

When you need to write a long email try to include three essential elements at the top of the email:

- **An Executive Summary:** This is a short summary of everything in the email document including the main goal of the email or the 'bottom line'. For example, 'Welcome to JKC Training Programme. This email contains important information about JKC training programme being offered to the graduates in Degree colleges. You will find the schedule, Topics covered in the training, Pre-training tests or any other activities, fee details, and testimonials from the earlier participants.
- **Required Response:** If you need to have your reader respond by a certain time with certain information, that should be stated within the executive summary. For example, 'Please let us know by Thursday whether you are attending the meeting.'
- **Table of Contents:** A table of contents allows the reader to pick and choose what sections of the email are most relevant to him or her. A person is most likely to comply with your requests when you make it easy for him or her to navigate your materials.

Rules of Thumb for e-mail's length are:

- Effective Subject lines
- 1 Page view only
- Average 15 words per sentence
- As short as possible – no extra words
- 2 – 3 lines per paragraph

(G) Avoid Flaming:

Flaming is a virtual term for showing emotion online or sending rude and offensive emails. It is best to avoid flaming because it tends to create more conflict and tension. Flames are unproductive and injurious to the parties involved.

In an email, what you say cannot be taken back. Misinterpretations happen very easily in emails because there is a lack of non-verbal expression to prompt the recipient about your motives and

intentions. You can imagine how much misinterpretation can occur when you are expressing frustration and/or anger.

Before sending an email, you must consider whether you would say the same things to the person face-to-face and how you would feel if you received such an email message. Also contemplate if sending the email will put the received in an awkward position.

Usually, by the time you give due consideration to these issues you will be calm enough to write your message with a different approach.

(H) Observance of Grammar:

There is a misconception that Grammar is not an observable factor in E-mail. We have to remember that E-mail is also a public and formal document like any other physical document, say letter. Hence, all the formal grammatical rules you follow in general written correspondence will apply here also. Some important considerations w.r.to Grammar and punctuation in e-mail:

- Use spellchecker to check the spelling mistakes in e-mail and correct them accordingly.
- Prefer simple and correct sentences to elaborate, over-expressive sentences.
- Use the Active Voice to the maximum extent to send the intended information clearly and directly.
- Use of appropriate punctuation marks where necessary is a must.
- Use of emoticons may be limited to personal mails. They may be avoided in formal/ official correspondence

(I) General e-mail Etiquette Rules:

- ALL CAPITALS AND OVER PUNCTUATING ARE CONSIDERED SHOUTING. Hence, do not write the mail with all capital letters.
- Not using capitalization or punctuation makes e-mail difficult to read
- Avoid use of abbreviations/ Acronyms to the possible extent, as they may confuse the recipients. If they are used, explain them.
- Avoid emoticons in formal and official emails.
- Check spelling and grammar before sending the email
- Do not use slang or colloquial language in formal/ official emails.
- Know the sender's details correctly: Forward-To-CC-BCC
- Urgent/ High Importance/ Low Importance may be indicated
- Subject may be clearly specified
- Salutation may be done appropriately based on formal/ informal correspondence.

- Observation of general good writing like 'Introduction – Body –Conclusion' may be observed here also.
- Your 'Signature' either scanned/ digitised may be attached to your email for authentication
- Draft email may be checked thoroughly before sending it
- Time Delays may be avoided as email sender expects urgent reply in general.
- Readability should be focused with right fonts and colours
- Arranging Text into Vertical Lists will help in browsing the long text
- Send Attachments with Care
- Consistent subject headings may be maintained in continued correspondence.
- Watch your Cyber language
- Avoid Sexist Language/ Racist language
- Set the Right Tone

4. Telephone Etiquette & SMS Etiquette:

Today, the usage of Telephone and Cellphone as means of communication has increased much. Further, due to the convenience provided by the mobile phones, Short Messaging Service (SMS) also has become a potential communication medium. Therefore, good phone etiquette has become very important both at work and at home. When a person is on the phone with someone, his/her only interaction is verbal, so saying the right things is important to make the right impression.

You may have to apply for jobs and receive the calls of inquiry or interview over phones. Since the interviewer/ H.R. manager forms an impression about you based on your conversation only, you have to be very careful in handling telephonic calls. Having good phone etiquette on your part shows that you are professional in your approach which will positively attract the future employers.

After getting a job, if you have to answer the phone at work place, you need to follow the generally observed rules of your work place. If your company doesn't have any standards for telephone procedures, you have to follow standards that are generally expected in a formal environment. You should speak clearly, be polite, and offer to take a message or help out if you are answering the phone for someone else.

Here are some common practices that will help you sound polite, whether talking on the phone to a friend, customer, potential employer, or complete stranger.

(a) Answering the Telephone:

- The greeting is key, it sets the tone and style of the whole interaction.

- If you are an employee working in an organisation, the proper way to answer the telephone is "Your department, Good morning and your name." For example, "Good morning, Hotel Taj Banjara, may I help you?" The name of the company needs to be stated alongwith the greeting as soon as the phone is answered. This lets the caller know that they have indeed reached the right business, and lets them know the company is willing to provide service.
- If you are a student/ unemployee receiving perhaps an interview call, the proper way to answer is by telling "Your Full Name and Place"

- All incoming calls should be answered on time. A good rule of thumb is never past the 3rd ring and it is best after the 1st ring.
- When speaking, think of the way you sound. Make sure you pronounce your words clearly and precisely.
- *Your voice reflects your courtesy*, since the person on the other end of the line cannot see your facial expressions your *"tone of voice"* will need to express this.
- If the person asks (for some one other than you), "may I speak to Mr. Venkat please," the response should be, *"one moment please, I will get him for you."* If the person is not available the response should be, *"I am sorry, Mr. Venkat is not available at this time, may I take a message?"*. Then take the message and pass it on to the correct person.

(b) Making Telephone Calls:

- Give your name and other details when the telephone is answered, before asking for the person you are requesting for. For example, "Hello Good Morning! This is Srinivas calling from Rajahmundry", and later "Can I talk to Mr.Rajesh please?"
- Let the telephone ring a reasonable length of time.
- If you are working as an employee and making some sales calls, be polite in your tone. Introduce yourself giving details and first know whether the customer has the time to listen to you. If theanswer is positive only, you should continue the conversation. Otherwise, just thank him and end the call.

(c) Taking/ Making a Note:

When the received call is of utmost importance, may be related to some information or an interview related details, note-making helps in handling the call well. Some points in this regard are:

- Since the human memory is not perfect, note making is recommended
- Written notes give you a record of the caller's/ customer's name and message including correct sellings, numbers, and accurate contact information.

- To avoid the delay, abbreviations may be used while note-making
- Information has to be prioritized while writing down
- The written notes has to be paraphrased/ rephrased to the caller so as to check for correction. This helps to get the right information. This also tells the customer that the receiver is listening.

(d) Putting the Customers/ Callers on Hold:

When you receive a call unexpectedly, may be from an interviewer if you are a student, or from a customer if you are an employee, it is common to put them on hold. But, proper etiquette should be observed when you put the callers/ customers on hold. Here are some useful tips in this regard:

- Because it is an inconvenience to your callers to be put on hold, you should always ask permission before putting them on hold. The second part of putting someone on hold is to wait for a positive response from the customer's side. As soon as the customer agrees to hold say "Thank You" before clicking off.
- Politely inform the callers/ customers as to why they must hold. They find it easier and comfortable to wait on hold if they have a mental picture of what you are doing while away from the phone.
- Give the caller/ customer a time frame. How specific the time frame needs to be depends on the length of time you think your caller/customer might have to hold. Here are some examples with a suggested path of action:
  - (i) When the time for holding is short (upto 60 seconds): " This will take a few moments"
  - (ii) Long (1-3 minutes): "This could take me 2 or 3 minutes to sort out. Would you like to hold or do you want me to call you back?"
  - (iii) Eternity(over 3 minutes): Ask for a number to call him/her back.

(e) Transferring a Call:

When the call is being transferred to somebody, please observe the following:

- Explain why the call is being transferred
- Ask if the customer minds being transferred
- Ensure someone is there to pickup call before hanging up
- Explain co-worker's absence positively

(f) Ending a Call:

The ending is the most critical part of the conversation. The last 30 seconds of the call is what leaves the most impact on a caller's/ customer's mind. It is critical to always end the call on a positive note:

- Repeat any action steps that you and the caller have agreed upon
- Ask the caller if you can do anything else for him/her.
- Thank the caller/ customer for calling and appreciate his effort and time.
- Let the caller hang up first.
- Write down any relevant information as soon as you get off the phone.

5. Cell Phone Etiquette:

After the increased use of Cell phones, they have almost replaced the traditional land phones. Hence, conversing over mobile phones in public places, while travelling, etc., has become so common. Most of the interviews are fixed over phones these days. More official communication is taking place over phones. Even tele-conferences also are taking place over mobile phones. Whether we like it or not, the cell phone has become an unavoidable communication tool today. If proper etiquette is not observed by the users, it becomes annoying to others. Therefore, some basic cell phone etiquettes that every cell phone user should know are given below:

(i) Talk at a Normal Tone

Do not shout into a cell phone when you are talking in a public place/ office. Sometimes when we think that the signal is weak and not able to get the other's voice clearly, we tend to shout. Rather than shouting, when we can't hear the other person, it is better to go to an area with a better signal strength.

(ii) Prefer the Vibrate Mode to Ringer

When you are using the cell phone in public places, it is advisable to use the vibration mode than the ring tone. The vibration mode serves the same purpose and alerts us when we have an incoming call, However, unlike the ringer this mode is less annoying.

(iii) Avoid Talking with Someone when on the Cell

We should avoid talking on the cell phone when we know we are going to be talking with someone. In the same way, when we are talking to someone face-to-face, it is not proper to talk privately to another person one over cell phone. If you have to take or make an important call, inform others about it and, that way there is no awkwardness.

(iv) Text Message

If we have to communicate with another person while at a public area, then it is better to use instant messaging. Inform them your situation and talk to them later. Not only is text messaging less rude, it avoids others hearing our conversation. We are more inclined to get straight to the point via text messaging than talking.

(v) Use Voice Mail Feature More

It is proper to switch off or keep your phone in silent mode when you are in a public meeting, conference or class room. There is nothing wrong in turning off a cell phone or missing a call. If a call is really important then the caller is more inclined to leave back a voice message. By using the Voice mail feature more, we can attend the important missed calls back without disturbing the meeting or conference.

6. SMS Etiquette:

Text messaging is one of the simplest and most useful means of mobile communication. Today, the Text messaging and short messaging service (SMS) has become very popular. From a personal communication device, now the SMS has entered the official circles, as an alerting and time-saving communication means. Hence, the general etiquette of communication mentioned for the e-mail in previous sections to SMS also. However, it is to be understood that SMS or Text Messaging through mobile is only to save time, give indication/ information that has already been sent through e-mail/ post. It should not replace the formal communication.

To avoid any embarassment in Text messaging (SMS), some important guidelines are provided below:

1. **Common courtesy applies:** Do not compose an SMS while you are talking to someone face-to-face, without seeking excuse for doing so.
2. **Remember that SMS is informal:** SMS shouldn't be used for formal invitations. The casualness of SMS diminishes the strength and meaning of the message.
3. **Don't get upset if you don't get a reply**: Before you text someone and get frustrated at the lack of a response, be sure that they're familiar with how to use the service, and that their carrier will accept messages from yours.
4. **Be aware of your tone:** It is extremely difficult to distinguish tone in text messages, just as in e-mail. What seems to you to be a completely harmless message may be grossly misinterpreted by the recipient, causing certain discomfort.
5. **Avoid using Slang:** Don't expect others to be familiar with the college students SMS language. Use proper language and acceptable acronyms only.
6. **Be careful of others' schedules**. Don't disturb others with your SMS beep sounds during odd hours, except when it is very urgent. Honour their privacy when they are at home and in important meetings.
7. **If it is urgent, make a voice call.** If you can't get through and your text message is ignored, there's probably a good reason. There are still some times when people don't even have a thumb free to respond.
8. **Do not provide all the information in an SMS:** When you want to send some lengthy and important information, it is always better to use the E-mail option or talk over phone than sending a lengthy SMS. But, you can use the SMS to inform them about your mail or your intention to talk.

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61. Interview Skills

An interview is a conversation between two people (the interviewer and the interviewee) where questions are asked by the interviewer to obtain information from the interviewee. The employment interview gives the employer the opportunity to appraise your qualifications, appearance and general fitness for the job opening. Think of the interview as a conversation between two people where each person is trying to learn more about the other. The interview process is a two-way street. You are traveling toward a goal—the right job and the employer is traveling toward a goal—the right candidate.

Interviews are of different types, as follows:

Patterned Interviews: Highly structured, systematic. Same questions are asked to each candidate in order to compare. Often used to initially screen applicants. Frequently used during on-campus interviews.

Non-Directive Interviews: Interviewer asks open-ended questions to allow applicant to express himself/herself in a unique way. "Tell me about yourself."

Stress Interviews: Used to analyze the candidate's ability to handle stressful situations. Used to weed out people who react defensively or are easily injured.

Group or Panel Interviews: A search committee comprised of managers, co-workers or people from other departments will examine a candidate.

Behavioral Interviews: An interviewer asks you to describe situations such as "Tell me about a situation where you had a conflict with your family member. How did you handle it?" The recruiter will use the rule of past performance and predicts future behavior. If you acted irrationally in the past, the recruiter will assume that you will exhibit this behavior in the future. The recruiter will not move to the next question until you have specifically described a situation. In order to understand better, let us divide the total aspect of facing an interview into: *before, during and after the interview.*

Before the Interview: **Prepare Yourself.** Review your resume and be ready to describe skills, abilities and past work experience. Be ready to describe critical skills that you have such as intellectual competence, leadership, team/personal skills, flexibility, communication, motivation, administrative and technical skills.

Research the company regarding its size, its competition, and prospects for future and recent developments. With knowledge of the company, you can demonstrate how you will be a good fit with the organization. Also, it will insure a more productive interview. Get company literature—through websites, library, company brochures, etc. Ask friends or family members to ask you potential interview questions.

Dress for Success; remember that you can also be judged by your appearance: Make a good first impression. Dress neatly and conservatively. The suggested attire for an interview is as follows:

WOMEN - suit, dress, saree, pantsuit; avoid flashy colors, avoid ill-fitting or tight clothing, wear conservative hemlines. Keep jewelry, makeup, and cologne to a minimum. Hair should be clean, neatly styled and away from the face.

MEN — conservative suit, blazer / jacket and tie, dress slacks, etc. Keep jewelry, aftershave, and cologne to a minimum. Some employers prefer cleanly shaven face.

During the Interview:

- Make a good initial impression.
- Have a firm handshake and make eye contact.
- Arrive about 15 minutes early.
- If necessary, drive to the actual interview site prior to the interview to determine the time you would take to reach the venue. Busy recruiters have turned away tardy interviewees.
- Conduct yourself professionally.
- You may meet your interviewer in the hallway or on the elevator.
- Be courteous and pleasant to all whom you meet.
- Answer questions thoroughly with relevant examples.
- Elaborate on questions and give specific details. If an employer asks, "Did you like your subjects in college?" Don't answer simply "yes". Rather, state what subjects of the curriculum you enjoyed and why.

Examine Your Body Language.

- Sit squarely and maintain good posture.
- At times, leaning forward will demonstrate enthusiasm and interest.
- Watch for crossed arms, or head in downward position.
- You do not want to lead others to think that you are closed, aloof or distant.
- Maintain good eye contact.

Interview Questions:

- Have Questions Prepared.
- Bring specific questions to ask the employer.
- Be sure not to ask those questions that the employer has already answered for you during the interview. It will appear as if you were not listening. Asking questions demonstrates interest in the position as well as in the company.
- **Demonstrate enthusiasm.** An excellent way to demonstrate enthusiasm is by making a well-researched presentation. Make your questions reflect your knowledge of the employer.

At the interview, let them know you are interested. Some employers state that after an interview, they do not truly know if the candidate is interested. Hopefully, you have demonstrated interest and enthusiasm throughout the interview, but do not be afraid to state in closing that you are very interested in the position.

Before you leave, did you cover everything? Often, in closing, an employer might ask if there were skills, qualities or accomplishments that were not discussed. Take this time to tell the interviewer about relevant skills that were not covered. Seize this opportunity even if everything was covered. Emphasize a particular point again.

Thank the interviewer. Always thank the interviewer for his/her time whether or not you want that particular position.

After the Interview: Send a thank you note. Send a short personal note to the interviewer. Be sure it is typed on conservative bond paper as if you were sending a business letter. Take time to thank the interviewer and emphasize a specific point about the interview, if desired. You can further demonstrate your uniqueness and seriousness about the position with this simple act of courtesy.

Evaluate Your Performance after the Interview. Take time to jot down the parts of the interview where you demonstrated competence such as "I described my past work experience well." Also, jot down those parts that were of difficulty to you such as "I stumbled on the question what are your weaknesses." These strengths on your list will help build your confidence for future interviews and the difficulties demonstrate areas where you may need more practice.

Interview Skills - Do's and Don'ts

DO...

- Plan to arrive a few minutes early.

- Greet the interviewer by last name if you are sure of the pronunciation. If not, ask the employer to repeat it.
- Give the appearance of energy as you walk.
- Smile.
- Shake hands firmly and be genuinely glad to meet them.
- Wait until you are offered a chair before sitting. Sit upright and look alert.
- Make eye contact throughout the interview.
- Follow the interviewer's lead, but try to get the interviewer to describe the position and duties to you early so you can apply your background, skills and accomplishments to the position.
- Stress your achievements and abilities as well as your skills and experience.
- Conduct yourself as if you are determined to get the job you are discussing.

DON'T...

- Forget to bring extra copies of your resume.
- Have something in your mouth to chew, like for instance, a bubble gum
- Answer "yes" or "no". Elaborate on your answers and provide specific examples if possible.
- Act. Be yourself. You will be happiest working for an employer that likes the real you.
- Lie. Represent yourself honestly.
- Be too casual.
- Make derogatory remarks about your present or former faculty / employer.
- Go off on tangents and ramble.
- Inquire about salary or benefits in the initial interview unless the employer raises the issue.

Worksheet-I

Interview Questions to Think About

1. Tell me about yourself?
2. What are your short-term and long-term career goals and how are you preparing to achieve them?
3. Why did you choose this career?
4. What do you consider to be your greatest strengths and weakness?
5. How would you describe yourself? How would your friends describe you?
6. How has your college experience prepared you for your career?
7. Why should I hire you?
8. How do you determine or evaluate success?
9. In what ways do you think you can make a contribution to our company?

10. Describe the relationship that should exist between a supervisor and those reporting to him/her?
11. Describe your most rewarding school/college experience.
12. If you were hiring for this position, what qualities would you look for?
13. What led you choose your field or specialization?
14. What have you learnt from participation in extracurricular activities?
15. How do you work under pressure?
16. Describe the ideal job.
17. Why did you decide to seek a position with organization and what do you know about us?
18. What major problems have you encountered and how did you deal with them?
19. What criteria are you using to evaluate the company/organization for which you hope to work?
20. What salary do you want?

References/Further Reading

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62. Preparing for Examinations

Introduction

The Oxford Advanced Learner's Dictionary defines the word 'examination' as 'a formal written, spoken or practical test'. Such a test is taken to see how much you know about a particular subject, or what you can do. Examinations are inevitable when you take a course. However, it is a common fact that most students are afraid of examinations. In fact, the very thought of the annual exams induces stress. So, how are you going to deal with this problem? This lesson will give you some tips and suggestions to help you to prepare well for examinations.

Activity 1:

Answer the following questions honestly:

1. Do you like the idea of taking exams? (Yes/ No)
2. Do you see that you have all the class notes, notes from text books and other reading material with you before you start preparing for your exams? (Yes/ No)
3. Do you start preparing for your exams well in advance? (Yes/ No)
4. Do you know some techniques which would help you to face your exams successfully? (Yes/ No)
5. Do you want to be successful in your exams? (Yes/ No)

It is assumed that your answer is 'Yes' to the 5th question. However, if you have answered 'No' for more than 2 out of the first 4 questions, then you are in need for some guidance in preparing for your exams. It is not enough to want to be successful in your exams without putting in the right kind of preparation.

Activity 2:

Read the following questions and answer them in not more than 2-3 sentences. Then, share your answers with the rest of the class :

1. Why are most students afraid or nervous of taking exams?

---

2. Why do some students score better marks than others?

---

3. How can you achieve success in your examinations?

At the completion of the above activity, you will know at least a few of the most important reasons why students fear exams as well as some of the Do's and Dont's on how to prepare for exams.

Activity 3:

Read the following statements on 'PREPARING FOR EXAMINATIONS – TIPS AND SUGGESTIONS. Some of them are true while others are false. Write 'T' for true and 'F' for false:

1. It is not necessary to attend classes or take notes. ( )
2. Reading and writing class notes, important concepts, definitions, formulas and key concepts will help in memorizing them. ( )
3. It is a waste of time to revise notes and other reading material. ( )
4. Preparing a time table for study helps you to organize yourself. ( )
5. Studying in groups enhances your learning. ( )
6. Taking breaks while studying is not advisable. ( )

7. It is important to always remain confident and be positive. ( )
8. Getting enough sleep makes you less focussed and alert. ( )
9. Answering old question papers gives you good practice. ( )
10. Managing time is a very important skill while preparing for exams. ( )
11. Having good and nutritious food is a must. ( )
12. Staying away from distractions will cause loss of concentration. ( )

After marking true or false at the end of the above statements, turn to your partner and compare your answers. Identify the false statements discuss and write down the correct answers. In your notebooks, draw up a fresh list of twelve statements with the necessary corrections. Share your answers with the rest of the class.

Activity 4:

Working in groups, choose SIX tips/suggestions from the above list, which your group thinks are most important for preparing for exams. Arrange them in descending order in terms of their importance. Give reasons why your group has chosen those six. Share with the rest of the class.

TOP SIX EXAM-PREPARATION TIPS

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

REASONS:

Now that you have a clear idea of some important tips on how to prepare for your exams, start studying!

TOP SEVEN EXAM-TAKING STRATEGIES

Here are some important strategies for taking your exams.

1. **Skim through the entire question paper-** Skimming through the question paper helps you to identify the questions you know and those that you are not sure of.
2. **Answer the questions you know first-** Answering the questions you know first will create a favourable impression and the examiner is likely to award good marks.
3. **Skip the questions you don't know –** Don't waste time on questions you are not very sure of. Skip them for you can come back later and try to answer them.
4. **Present your answers well-** Even though you have prepared well, what gives you marks is what you have written in the exam and how. Good presentation and a neat, legible handwriting will ensure full marks.
5. **Manage your time-** Be sure to manage your time as it is very important to allot time proportionately to all the questions. Don't waste too much time writing elaborate answers to questions which carry fewer marks.
6. **Double check your answers –** Double check your answers to see if you have attempted all of them. Make sure you have not overlooked any question.

Relax – Remember that it is very important to avoid stress as it is very easy to panic and forget all that you have studied. So, relax, take a deep breath and start writing!

JKC

JAWAHAR KNOWLEDGE CENTRE (JKC)

Computer Skills

- Student's Book

Commissionerate of Collegiate Education
Government of Andhra Pradesh
BRKR Bhavan,Hyderabad.

JKC

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Message

I am happy to note that the Commissionerate of College Education has brought out four books for the aid of JKC Students and teachers. I hope that the material will help the students in acquiring additional skills which are essential for their employment and future career.

Jawahar Knowledge Centers (JKCs) have been doing a good service to the students in bringing out their innate skills, particularly among rural poor and other disadvantaged sections.

I appreciate the efforts of the officials for strengthening the Jawahar Knowledge Centers there by paving way for bright future of the youth of newly formed Andhra Pradesh State.

I wish the students of JKCs a present success in their endeavor.

(Ganta Srinivasa Rao)

Acknowledgements

Creative and productive work is possible through effort of dedicated people. The students' study material and teacher manual is brought out to effectively support and strengthen student learning in JKC programmes across the state. It is the product of hard work and commitment of several academicians. We gratefully acknowledge all their efforts.

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Department of Collegiate Education

Foreword

The Department of Collegiate Education strives in making higher education accessible to all sectors of people and promotes women education at Under Graduate and Post Graduate levels. The advent of liberalization in economy and the big boom in IT sector have opened the door of opportunity in global job market to those who have good communication skills, computer skills, and industry related skills, apart from strong domain knowledge in the core subjects. The conventional curriculum offered in the form of B.A., B.Com and B.Sc., courses does not impart requisite skills relevant to the dynamic job market especially that of industries like IT and ITES. The Department felt the urgency of imparting skill-based training to students so as to bridge the skill deficit of students and enable them seize the employment opportunities available in the job market.

The Government of Andhra Pradesh established Jawahar Knowledge Centres (JKCs) - the modern finishing school in Government Degree Colleges across the state of Andhra Pradesh to impart training in employability skills with a special curriculum. These centers aim at providing training in employability skills and placement assistance to those students studying conventional courses in Degree Colleges of Andhra Pradesh.

The unique feature of JKC is its training programme which is designed to help students develop confidence, communicative competency and grow as professionals. The curriculum includes communication skills, soft skills, analytical skills, technical skills, ethical values and general awareness. Each JKC conducts training in three batches per year with duration of three months each. The 250 hour training imparted by the trained Mentors helps in mentoring the graduate students as Employable graduates.

As the JKC acts as a finishing school, every JKC student comes out as a polished product with improved dynamism and confidence levels. It is no exaggeration to say that the JKCs are successful in enabling the rural students compete with their urban counterparts by bridging the urban-rural divide. In addition to the regular training in employability skills, JKC also provides placement assistance by conducting on-campus recruitment drives.

JKC Monitoring Cell (JKCMC) at the Commissionerate of Collegiate Education, AP, Hyderabad focuses on overall coordination by organizing workshops and training programmes. It acts

as an interface between industry and academia and plays a vital role in enforcing the effective functioning of the project.

The department approached Centre for Innovations in Public Systems (CIPS), Hyderabad (An Autonomous Organization Funded by Government of India) to evaluate JKCs in terms of the achievements in the stated objectives and to suggest suitable recommendations for strengthening the programme. The CIPS, in its evaluation report, appreciated the initiative and the results thereon, and made a few recommendations. One of the recommendations of the CIPS was that Study material could be made available to the JKC students in the form of printed books.

The Commissionerate of Collegiate Education in its efforts to implement CIPS recommendations has taken up the task of preparing study material (Communication Skills, Soft Skills, Analytical Skills and Computer Skills) for the students and a manual for teachers by inviting well-experienced teachers in the concerned areas.

I wish to express my gratitude to the Government of Andhra Pradesh for their unstinted support to the department in effectively running the JKCs.

I hope that this attempt will enhance students' enthusiasm and sustain their interest in the course leading to qualitative outcome. I also hope that this endeavor will strengthen our resolve to take up many more such initiatives in future in serving the student community.

K. Sunitha, IAS
Commissioner of Collegiate Education
Government of Andhra Pradesh
Hyderabad

Introduction

Fundamental knowledge in computers has become a basic necessity for a person in the work place wherever it is. In fact, in the present computers era, a candidate for any job is automatically expected to have certain basic computer knowledge. It's a part of any competitive examination. It has therefore become a basic component in the preparatory training given to students for facing competitive examinations. Hence, training in computers has naturally been one of the three major divisions in the JKC training. Although knowledge and skills in computers are mostly learnt on computer itself, a broad theoretical understanding makes the learning systematic and solid.

This book is intended to assist JKC students to learn a set of basic computer skills. It is also expected to aid Mentors to teach in a systematic and progressive way. The material mainly focuses areas like fundamentals of computers, acquainting with Windows operating system, major concepts of M.S. Office like M.S Word, M.S Excel, M.S Power Point and M.S Access and acquainting with internet skills like browsing, searching. In addition, this book includes certain popular online applications such as online shopping, railway reservations and creating mail accounts. Certain introductory aspects of hardware like computer components, printers and scanners were also included as they are basic requirements. A few assignments are given in the appendix to help students in their practical sessions. The students are further advised to explore and experiment the concepts themselves using other standard text books and open internet resources for more learning experiences.

In this book, some downloaded open material from various sites like IRCTC, flipcart, gmail and from such other organizations is included for providing illustrations. The authors thankfully acknowledge and express their gratitude to all such sites and organisations. This reading material is not for commercial use and will be used by the students of Jawahar Knowledge Center exclusively for educational purpose in internal circulations.

This book is the first humble attempt to provide useful learning material to the JKC students. It can be no way described as comprehensive. All suggestions by the readers will be thankfully received and used for future improvements. We wish all successful learning experiences to all the JKC students.

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Computer Fundamentals

1.1 What is a Computer?

A **computer** is an electronic device that accepts data, stores it, processes it and output the information. It has the ability to **store**, **retrieve**, and **process** data. We can use a computer to type documents, send emails, browse internet, handle spreadsheets, manage databases, giving presentations, playing games, and more.

Charles Babbage is called the "Father of the computers. The First mechanical computer designed by charles Babbage was called **Analytical Engine.** It uses read-only memory in the form of punch cards.

Computers are not very intelligent devices, but they handle instructions flawlessly and with great speed. They must follow explicit directions from both the user and computer programmer. Computers are really nothing more than a very powerful calculator with some great accessories.

A computer system consists of mainly four basic units; namely input unit, storage unit, central processing unit and output unit. Central Processing unit further includes Arithmetic logic unit and control unit.

A computer performs five major operations or functions irrespective of its size and make.

These are

- it accepts data or instructions as input,
- it stores data and instructions,
- it processes data as per the instructions,
- it controls all operations inside a computer, and
- it gives results in the form of output.

1.2 Features of Computers

The characteristics of computers that have made them so powerful and universally useful are speed, accuracy, diligence, versatility and storage capacity. Let us discuss them briefly.

Speed

Computers work at an incredible speed. A powerful computer is capable of performing about 3-4 million simple instructions per second.

Accuracy

In addition to being fast, computers are also accurate. It will never perform errors. Errors that may occur can almost always be attributed to human beings (inaccurate data, poorly designed system or faulty instructions/ programs written by the programmer)

Diligence

Unlike human beings, computers are highly consistent. They do not suffer from human traits of boredom and tiredness resulting in lack of concentration. Computers, therefore, are better than human beings in performing voluminous and repetitive jobs.

Versatility

Computers are versatile machines and are capable of performing any task as long as it can be broken down into a series of logical steps. The presence of computers can be seen in almost every sphere – Railway/Air reservation, Banks, Hotels, Weather forecasting and many more.

Storage Capacity

Secondary storage devices are the key for the data storage. They store the data for which the user wants to retrieve these data for future use. The examples for various secondary devices are Floppy disk, Optical disks (CS and DVD), Zip drives, Thumb drives etc. The data of smaller size can be easily fetched and they can be copied to the primary memory (RAM).

Cheaper

Computers are short term investment in order to achieve a long term gain. Though the investment is high they reduce the cost of each and every transaction. They reduce man power and leads to an elegant and efficient way for computing various tasks.

Needs a User interface

The only draw back of computer is it cannot make the decision of its own. It needs a guidance to enhance the process. After all computer is a machine.

1.3 Computer Generations

The history of computer development is often referred to in reference to the different generations of computing devices. Each of the five generation of computers is characterized by a major technological development that fundamentally changed the way computers operate, resulting in increasingly smaller, cheaper, more powerful and more efficient and reliable devices. Learn about each generation and the developments that led to the current devices that we use today.

First Generation (1940-1956) Vacuum Tubes

The first computers used vacuum tubes for circuitry and magnetic drums for memory, and were often enormous in size, taking up entire rooms. They were very expensive to operate and in addition to using a great deal of electricity, generated a lot of heat, which was often the cause of malfunctions.

First generation computers relied on machine language, the lowest-level programming language understood by computers, to perform operations, and they could only solve one problem at a time. Input was based on punched cards and paper tape, and output was displayed on printouts.

The UNIVAC and ENIAC computers are examples of first-generation computing devices. The UNIVAC was the first commercial computer delivered to a business client, the U.S. Census Bureau in 1951.

Second Generation (1956-1963) Transistors

Transistors replaced vacuum tubes in the second generation of computers. The transistor was invented in 1947 but did not see widespread use in computers until the late 1950s. The transistor was far superior to the vacuum tube, allowing computers to become smaller, faster, cheaper, more energy-efficient and more reliable than their first-generation predecessors. Though the transistor still generated a great deal of heat that subjected the computer to damage, it was a vast improvement over the vacuum tube. Second-generation computers still relied on punched cards for input and printouts for output.

Second-generation computers moved from cryptic binary machine language to symbolic, or assembly, languages, which allowed programmers to specify instructions in words. High-level programming languages were also being developed at this time, such as early versions of COBOL and FORTRAN. These were also the first computers that stored their instructions in their memory, which moved from a magnetic drum to magnetic core technology.

The first computers of this generation were developed for the atomic energy industry.

Third Generation (1964-1971) Integrated Circuits

The development of the integrated circuit was the hallmark of the third generation of computers. Transistors were miniaturized and placed on silicon chips, called semiconductors, which drastically increased the speed and efficiency of computers.

Instead of punched cards and printouts, users interacted with third generation computers through keyboards and monitors and interfaced with an operating system, which allowed the device to run many different applications at one time with a central program that monitored the memory. Computers for the first time became accessible to a mass audience because they were smaller and cheaper than their predecessors.

Fourth Generation (1971-Present) Microprocessors

The microprocessor brought the fourth generation of computers, as thousands of integrated circuits were built onto a single silicon chip. The first generation computers filled an entire room where as fourth generation computers could now fit in the palm of the hand.

As these small computers became more powerful, they could be linked together to form networks, which eventually led to the development of the Internet. Fourth generation computers also saw the development of GUIs, the mouse and handheld devices.

Fifth Generation (Present and Beyond) Artificial Intelligence

Fifth generation computing devices, based on artificial intelligence, are still in development, though there are some applications, such as voice recognition, that are being used today. The use of parallel processing and superconductors is helping to make artificial intelligence a reality. Quantum computation and molecular and nanotechnology will radically change the face of computers in years to come. The goal of fifth-generation computing is to develop devices that respond to natural language input and are capable of learning and self-organization.

1.4 What are the Different Types of Computers?

Computers of the earlier times were of the size of a large room and were required to consume huge amounts of electric power. However, with the advancing technology, computers have shrunk to the size of a small watch. Depending on the processing power and size of computers, they have been classified under various types. Let us look at the classification of computers.

Based on the operational principle of computers, they are categorized as digital, analog, and hybrid computers.

Digital Computers: They use digital circuits and are designed to operate on two states, namely bits 0 and 1. They are analogous to states ON and OFF. Data on these computers is represented as a series of 0s and 1s. Digital computers are suitable for complex computation and have higher processing speeds. They are programmable. Digital computers are either general purpose computers or special purpose computers. Special purpose computers, as their name suggests, are designed for specific types of data processing while general purpose computers are meant for general use.

Analog Computers: An Analog computer is designed to process continuous physical quantities. They use continuous variables like mechanical or electrical energy as input. Examples of analog computer usage include monitoring temperature, voltage and current reading in power station. Each of these parameters can attain an infinite number of values, not just on or off.

Hybrid Computers: These computers are a combination of both digital and analog computers. In this type of computers, the digital segments perform process control by conversion of analog signals to digital ones.

This was the classification of computers based on their style of functioning. Following is a classification of the different types of computers based on their sizes and processing powers.

Mainframe Computers: Large organizations use mainframes for highly critical applications such as bulk data processing and ERP. Most of the mainframe computers have capacities to host multiple operating systems and operate as a number of virtual machines. They can substitute for several small servers.

Microcomputers: A computer with a microprocessor is known as a microcomputer. They do not occupy space as much as mainframes do. When supplemented with a keyboard and a mouse, microcomputers can be called personal computers. A monitor, a keyboard and other similar input-output devices, computer memory in the form of RAM and a power supply unit come packaged in a microcomputer. These computers can fit on desks or tables and prove to be the best choice for single-user tasks.

Personal computers come in different forms such as desktops, laptops and personal digital assistants. Let us look at each of these types of computers.

Desktops: A desktop is intended to be used on a single location. The spare parts of a desktop computer are readily available at relatively lower costs. Power consumption is not as critical as that in laptops. Desktops are widely popular for daily use in the workplace and households.

Laptops: Similar in operation to desktops, laptop computers are miniaturized and optimized for portable use. Laptops run on a single battery or an external adapter that charges the computer batteries. They are enabled with an inbuilt keyboard, touch pad acting as a mouse and a liquid crystal display. Their portability and capacity to operate on battery power have proven to be of great help to mobile users.

Netbooks: They fall in the category of laptops, but are inexpensive and relatively smaller in size. They had a smaller feature set and lesser capacities in comparison to regular laptops, at the time they came into the market. But with passing time, netbooks too began featuring almost everything that notebooks had. By the end of 2008, netbooks had begun to overtake notebooks in terms of market share and sales.

Personal Digital Assistants (PDAs): It is a handheld computer and popularly known as a palmtop. It has a touch screen and a memory card for storage of data. PDAs can also be used as portable audio players, web browsers and smartphones. Most of them can access the Internet by means of Bluetooth or Wi-Fi communication.

Minicomputers: In terms of size and processing capacity, minicomputers lie in between mainframes and microcomputers. Minicomputers are also called mid-range systems or workstations. The term began to be popularly used in the 1960s to refer to relatively smaller third generation computers. They took up the space that would be needed for a refrigerator or two and used transistor and core memory technologies. The 12-bit PDP-8 minicomputer of the Digital Equipment Corporation was the first successful minicomputer.

Servers: They are computers designed to provide services to client machines in a computer network. They have larger storage capacities and powerful processors. Running on them are programs that serve client requests and allocate resources like memory and time to client machines. Usually they are very large in size, as they have large processors and many hard drives. They are designed to be fail-safe and resistant to crash.

Supercomputers: The highly calculation-intensive tasks can be effectively performed by means of supercomputers. Quantum physics, mechanics, weather forecasting, molecular theory are best studied by means of supercomputers. Their ability of parallel processing and their well-designed memory hierarchy give the supercomputers, large transaction processing powers.

Wearable Computers: A record-setting step in the evolution of computers was the creation of wearable computers. These computers can be worn on the body and are often used in the study of behavior modeling and human health. Military and health professionals have incorporated wearable computers into their daily routine, as a part of such studies. When the users' hands and sensory organs are engaged in other activities, wearable computers are of great help in tracking human actions. Wearable computers do not have to be turned on and off and remain in operation without user intervention.

Tablet Computers: Tablets are mobile computers that are very handy to use. They use the touch screen technology. Tablets come with an onscreen keyboard or use a stylus or a digital pen. Apple's iPad redefined the class of tablet computers.

1.5 Applications of Computers

Computers have their application or utility everywhere. We find their applications in almost every sphere of life–particularly in fields where computations are required to be done at a very fast speed and where data is so complicated that the human brain finds it difficult to cope up with.

As you must be aware, computer now-a-days are being used almost in every department to do the work at a greater speed and accuracy. They can keep the record of all the employees and prepare their pay bill in a matter of minutes every month. They can keep automatic checks on the stock of a particular item. Some of the prominent areas of computer applications are:

In Tourism: Hotels use computers to speed up billing and checkout the availability of rooms. So is the case with railways and airline reservations for booking tickets. Architects can display their scale models on a computer and study them from various angles and perspectives. Structural problems can now be solved quickly and accurately.

In Banks: Banks also have started using computers extensively. Terminals are provided in the branch and the main computer is located centrally. This enables the branches to use the central computer system for information on things such as current balance,deposits, overdrafts, interest charges, etc. MICR encoded cheques can be read and sorted out with a speed of 3000 cheques per minute by computers as compared to hours taken by manual sorting. Electronic funds transfer (EFT) allows a person to transfer funds through computer signals over wires and telephone lines making the work possible in a very short time.

In Industry: Computers are finding their greatest use in factories and industries of all kinds. They have taken over the work ranging from monotonous and risky jobs like welding to highly complex jobs such as process control. Drills, saws and entire assembly lines can be computerized. Moreover, quality control tests and the manufacturing of products, which require a lot of refinement, are done with the

help of computers. Not only this, Thermal Power Plants, Oil refineries and chemical industries fully depend on computerized control systems because in such industries the lag between two major events may be just a fraction of a second.

In Transportation: Today computers have made it possible for planes to land in foggy and stormy atmosphere also. The aircraft has a variety of sensors, which measure the plane's altitude, position, speed, height and direction. Computer use all this information to keep the plane flying in the right direction. In fact, the Auto–pilot feature has made the work of pilot much easy.

In Education: Computers have proved to be excellent teachers. They can possess the knowledge given to them by the experts and teach you with all the patience in the world. You may like to repeat a lesson hundred times, go ahead, you may get tired but the computer will keep on teaching you. Computer based instructions (CBI) and Computer Aided Learning (CAL) are common tools used for teaching. Computer based encyclopedia such as Britannica provide you enormous amount of information on anything.

In Entertainment: Computers are also great entertainers. Many computer games are available which are like the traditional games like chess, football, cricket, etc. Dungeons and dragons provide the opportunity to test your memory and ability to think. Other games like Braino and Volcano test your knowledge.

1.6 Input/Output devices

These devices are used to enter information and instructions into a computer for storage or processing and to deliver the processed data to a user. Input/Output devices are required for users to communicate with the computer. In simple terms, input devices bring information INTO the computer and output devices bring information OUT of a computer system. These input/output devices are also known as peripherals since they surround the CPU and memory of a computer system.

a) **Input Devices** An input device is any device that provides input to a computer. There are many input devices, but the two most common ones are a keyboard and mouse. Every key you press on the keyboard and every movement or click you make with the mouse sends a specific input signal to the computer.

- **Keyboard**: The keyboard is very much like a standard typewriter keyboard with a few additional keys. The basic QWERTY layout of characters is maintained to make it easy to use the system. The additional keys are included to perform certain special functions. These are known as function keys that vary in number from keyboard to keyboard.

- **Mouse**: A device that controls the movement of the cursor or pointer on a display screen. A mouse is a small object you can roll along a hard and flat surface. Its name is derived from its shape, which looks a bit like a mouse. As you move the mouse, the pointer on the display screen moves in the same direction.

Trackball: A trackball is an input device used to enter motion data into computers or other electronic devices. It serves the same purpose as a mouse, but is designed with a moveable ball on the top, which can be rolled in any direction.

- **Touchpad**: A touch pad is a device for pointing (controlling input positioning) on a computer display screen. It is an alternative to the mouse. Originally incorporated in laptop computers, touch pads are also being made for use with desktop computers. A touch pad works by sensing the user's finger movement and downward pressure.

- **Touch Screen:** It allows the user to operate/make selections by simply touching the display screen. A display screen that is sensitive to the touch of a finger or stylus. Widely used on ATM machines, retail point-of-sale terminals, car navigation systems, medical monitors and industrial control panels.

- **Light Pen**: Light pen is an input device that utilizes a light-sensitive detector to select objects on a display screen.

- **Magnetic ink character recognition (MICR)**: MICR can identify character printed with a special ink that contains particles of magnetic material. This device particularly finds applications in banking industry.

- **Optical mark recognition (OMR)**: Optical mark recognition, also called mark sense reader is a technology where an OMR device senses the presence or absence of a mark, such as pencil mark. OMR is widely used in tests such as aptitude test.

- **Bar code reader**: Bar-code readers are photoelectric scanners that read the bar codes or vertical zebra strips marks, printed on product containers. These devices are generally used in super markets, bookshops etc.

- **Scanner**: Scanner is an input device that can read text or illustration printed on paper and translates the information into a form that the computer can use. A scanner works by digitizing an image.

Output Devices:

Output device receives information from the CPU and presents it to the user in the desired from. The processed data, stored in the memory of the computer is sent to the output unit, which then converts it into a form that can be understood by the user. The output is usually produced in one of the two ways – on the display device, or on paper (hard copy).

- **Monitor**: is often used synonymously with "computer screen" or "display." Monitor is an output device that resembles the television screen. It may use a Cathode Ray Tube (CRT) to display information. The monitor is associated with a keyboard for manual input of characters and displays the information as it is keyed in. It also displays the program or application output. Like the television, monitors are also available in different sizes.

- **Printer**: Printers are used to produce paper (commonly known as hardcopy) output. Based on the technology used, they can be classified as Impact or Non-impact printers.

  Impact printers use the typewriting printing mechanism wherein a hammer strikes the paper through a ribbon in order to produce output. Dot-matrix and Character printers fall under this category.

  Non-impact printers do not touch the paper while printing. They use chemical, heat or electrical signals to etch the symbols on paper. Inkjet, Deskjet, Laser, Thermal printers fall under this category of printers.

- **Plotter**: Plotters are used to print graphical output on paper. It interprets computer commands and makes line drawings on paper using multicoloured automated pens. It is capable of producing graphs, drawings, charts, maps etc.

- **Facsimile (FAX)**: Facsimile machine, a device that can send or receive pictures and text over a telephone line. Fax machines work by digitizing an image.

- **Sound cards and Speaker(s)**: An expansion board that enables a computer to manipulate and output sounds. Sound cards are necessary for nearly all CD-ROMs and have become commonplace on modern personal computers. Sound cards enable the computer to output sound through speakers connected to the board, to record sound input from a microphone connected to the computer, and manipulate sound stored on a disk.

1.7 Computer's memory

Computer's memory can be classified into two types; primary memory and secondary memory

a. Primary Memory can be further classified as RAM and ROM.

- RAM or Random Access Memory is the unit in a computer system. It is the place in a computer where the operating system, application programs and the data in current use are kept temporarily so that they can be accessed by the computer's processor. It is said to be 'volatile' since its contents are accessible only as long as the computer is on. The contents of RAM are no more available once the computer is turned off.

  ROM or Read Only Memory is a special type of memory which can only be read and contents of which are not lost even when the computer is switched off. It typically contains manufacturer's instructions. Among other things, ROM also stores an initial program called the 'bootstrap loader' whose function is to start the operation of computer system once the power is turned on.

b. Secondary Memory

RAM is volatile memory having a limited storage capacity. Secondary/auxiliary memory is storage other than the RAM. These include devices that are peripheral and are connected and controlled by the computer to enable permanent storage of programs and data.

Secondary storage devices are of two types; magnetic and optical. Magnetic devices include hard disks and optical storage devices are CDs, DVDs, Pen drive, Zip drive etc.

- **Hard Disk**

Hard disks are made up of rigid material and are usually a stack of metal disks sealed in a box. The hard disk and the hard disk drive exist together as a unit and is a permanent part of the computer where data and programs are saved. These disks have storage capacities ranging from 1GB to 80 GB and more. Hard disks are rewritable.

- **Compact Disk**

Compact Disk (CD) is portable disk having data storage capacity between 650-700 MB. It can hold large amount of information such as music, full-motion videos, and text etc. CDs can be either read only or read write type.

- **Digital Video Disk**

Digital Video Disk (DVD) is similar to a CD but has larger storage capacity and enormous clarity. Depending upon the disk type it can store several Gigabytes of data. DVDs are primarily used to store music or movies and can be played back on your television or the computer too. These are not rewritable.

1.8 Computer Software

Computer software is the set of programs that makes the hardware perform a set of tasks in particular order. Hardware and software are complimentary to each other. Both have to work together to produce meaningful results. Computer software is classified into two broad categories; system software and application software.

System software

System software consists of a group of programs that control the operations of a computer equipment including functions like managing memory, managing peripherals, loading, storing, and is an interface between the application programs and the computer. MS DOS (Microsoft's Disk Operating System), UNIX are examples of system software.

Software that can perform a specific task for the user, such as word processing, accounting, budgeting or payroll, fall under the category of application software. Word processors, spreadsheets, database management systems are all examples of general purpose application software.

Types of application software are:

- Word processing software: The main purpose of this software is to produce documents. MS-Word, Word Pad, Notepad and some other text editors are some of the examples of word processing software.
- Database software: Database is a collection of related data. The purpose of this software is to organize and manage data. The advantage of this software is that you can change way data is stored and displayed. MS access, dBase, FoxPro, Paradox, and Oracle are some of the examples of database software.
- Spread sheet software: The spread sheet software is used to maintain budget, financial statements, grade sheets, and sales records. The purpose of this software is organizing numbers. It also allows the users to perform simple or complex calculations on the numbers entered in rows and columns. MS-Excel is one of the example of spreadsheet software.
- Presentation software: This software is used to display the information in the form of slide show. The three main functions of presentation software is editing that allows insertion and formatting of text, including graphics in the text and executing the slide shows. The best example for this type of application software is Microsoft PowerPoint.
- Multimedia software: Media players and real players are the examples of multimedia software. This software will allow the user to create audio and videos. The different forms of multimedia software are audio converters, players, burners, video encoders and decoders.

1.9 Windows:

The Windows desktop

The desktop is the main screen area that you see after you turn on your computer and log on to Windows. Like the top of an actual desk, it serves as a surface for your work. When you open programs or folders, they appear on the desktop. You can also put things on the desktop, such as files and folders, and arrange them however you want.

The desktop is sometimes defined more broadly to include the taskbar and Windows Sidebar. The taskbar sits at the bottom of your screen. It shows you which programs are running and allows you to switch between them. It also contains the Start button ●, which you can use to access programs, folders, and computer settings. On the side of the screen, Sidebar contains small programs called gadgets.

Because programs run on top of the desktop, the desktop itself is often partially or completely hidden. But it's still there, underneath everything. To see the whole desktop without closing any of your open programs or windows, click the Show Desktop button on the taskbar. The desktop is revealed. Click the icon again to restore all of your windows to the way they were

Working with desktop icons

Icons are small pictures that represent files, folders, programs, and other items. When you first start Windows, you'll see at least one icon on your desktop: the Recycle Bin (more on that later). Your computer manufacturer might have added other icons to the desktop. Some examples of desktop icons are shown below.

Examples of desktop icons

Double-clicking a desktop icon starts or opens the item it represents. For example, double-clicking the Internet Explorer icon starts Internet Explorer.

Adding and removing icons from the desktop

You can choose which icons appear on the desktop—you can add or remove an icon at any time. Some people like a clean, uncluttered desktop with few or no icons. Others place dozens of icons on their desktop to give them quick access to frequently used programs, files, and folders.

If you want easy access from the desktop to your favorite files or programs, create shortcuts to them. A shortcut is an icon that represents a link to an item, rather than the item itself. When you double-click a

shortcut, the item opens. If you delete a shortcut, only the shortcut is removed, not the original item. You can identify shortcuts by the arrow on their icon.

Moving icons around

Windows stacks icons in columns on the left side of the desktop. But you're not stuck with that arrangement. You can move an icon by dragging it to a new place on the desktop.

You can also have Windows automatically arrange your icons. Right-click an empty area of the desktop, click View, and then click Auto Arrange. Windows stacks your icons in the upper-left corner and locks them in place. To unlock the icons so that you can move them again, click Auto Arrange again, clearing the check mark next to it.

Selecting multiple icons

To move or delete a bunch of icons at once, you must first select all of them. Click an empty area of the desktop and drag the mouse. Surround the icons that you want to select with the rectangle that appears. Then release the mouse button. Now you can drag the icons as a group or delete them.

Select multiple desktop icons by dragging a rectangle around them

Hiding desktop icons

If you want to temporarily hide all of your desktop icons without actually removing them, right-click an empty part of the desktop, click View, and then click Show Desktop Icons to clear the check mark from that option. Now no icons are displayed on the desktop. You can get them back by clicking Show Desktop Icons again.

The Recycle Bin

When you delete a file or folder, it doesn't actually get deleted right away—it goes to the Recycle Bin. That's a good thing, because if you ever change your mind and decide you need a deleted file, you can get it back.

The Recycle Bin when empty (left) and full (right)

If you're sure that you won't need the deleted items again, you can empty the Recycle Bin. Doing that will permanently delete the items and reclaim any disk space they were using.

The Start menu

The Start menu is the main gateway to your computer's programs, folders, and settings. It's called a menu because it provides a list of choices, just as a restaurant menu does. And as "Start" implies, it's often the place that you'll go to start or open things.

Use the Start menu to do these common activities:

- Start programs
- Open commonly used folders
- Search for files, folders, and programs
- Adjust computer settings
- Get help with the Windows operating system
- Turn off the computer
- Log off from Windows or switch to a different user account

To open the Start menu, click the Start button in the lower-left corner of your screen. Or, press the Windows logo key on your keyboard. The Start menu appears.

Start button and Start menu

The Start menu is divided into three basic parts:

- The large left pane shows a short list of programs on your computer. Your computer manufacturer can customize this list, so its exact appearance will vary. Clicking All Programs displays a complete list of programs (more on this later).
- In the lower left corner is the search box, which allows you to look for programs and files on your computer by typing in search terms.
- The right pane provides access to commonly used folders, files, settings, and features. It's also where you go to log off from Windows or turn off your computer.

Opening programs from the Start menu

One of the most common uses of the Start menu is opening programs installed on your computer. To open a program shown in the left pane of the Start menu, click it. The program opens and the Start menu closes.

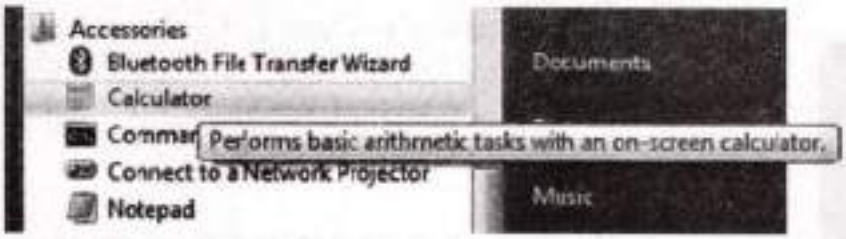
If you don't see the program you want to open, click All Programs at the bottom of the left pane. Instantly, the left pane displays a long list of programs in alphabetical order, followed by a list of folders:

The Start menu after clicking All Programs

Clicking one of the program icons launches the program, and the Start menu closes. So what's inside the folders? More programs. Click Accessories, for example, and a list of programs that are stored in that folder appears. Click any program to open it. To get back to the programs you saw when you first opened the Start menu, click Back near the bottom of the menu.

Clicking the Accessories folder shows the programs it contains

If you're ever unsure what a program does, move the pointer over its icon or name. A box appears that often contains a description of the program. For example, pointing to Calculator displays this message: "Performs basic arithmetic tasks with an on-screen calculator." This trick works for items in the right pane of the Start menu, too.



Pointing to an item displays information about it

You might notice that over time, the lists of programs in your Start menu change. This happens for two reasons. First, when you install new programs, they get added to the All Programs list. Second, the Start menu detects which programs you use the most, and it places them in the left pane for quick access.

The Search box

The Search box is one of the most convenient ways to find things on your computer. The exact location of the items doesn't matter—the Search box will scour your programs and all of the folders in your personal folder (which includes Documents, Pictures, Music, Desktop, and other common locations). It will also search your e-mail messages, saved instant messages, appointments, and contacts.

The Start menu Search box

To use the Search box, open the Start menu and start typing. You don't need to click inside the box first. As you type, the search results appear above the Search box in the left pane of the Start menu.

A program, file, or folder will appear as a search result if:

- Any word in its title matches or begins with your search term.
- Any text in the actual contents of the file—such as the text in a word-processing document—matches or begins with your search term.
- Any word in a property of the file, such as the author, matches or begins with your search term.
- Click any search result to open it. Or, click the Clear button ×to clear the search results and return to the main programs list. You can also click Search Everywhere to search your entire computer; or Search the Internet to open your web browser and search the Internet for your term.

Besides programs, files and folders, and communications, the Search box also looks through your Internet favorites and the history of websites you've visited. If any of these webpages include the search term, they appear under a heading called "Favorites and History."

What's in the right pane?

The right pane of the Start menu contains links to parts of Windows that you're likely to use frequently. Here they are, from top to bottom:

- Personal folder. Opens your personal folder, which is named for whoever is currently logged on to Windows. For example, if the current user is Molly Clark, the folder will be named Molly Clark. This folder, in turn, contains user-specific files, including the Documents, Music, Pictures, and Videos folders.
- Documents. Opens the Documents folder, where you can store and open text files, spreadsheets, presentations, and other kinds of documents.
- Pictures. Opens the Pictures folder, where you can store and view digital pictures and graphics files.
- Music. Opens the Music folder, where you can store and play music and other audio files.
- Games. Opens the Games folder, where you can access all of the games on your computer.
- Recent Items. Opens a list of files you've opened recently. Click one of the files in the list to open it.
- Computer. Opens a window where you can access disk drives, cameras, printers, scanners, and other hardware connected to your computer.
- Network. Opens a window where you can access the computers and devices on your network.
- Connect To. Opens a window where you can connect to a new network.
- Control Panel. Opens Control Panel, where you can customize the appearance and functionality of your computer, add or remove programs, set up network connections, and manage user accounts.
- Default Programs. Opens a window where you can choose which program you want Windows to use for activities like web browsing, editing pictures, sending e-mail, and playing music and videos.
- Help and Support. Opens Windows Help and Support, where you can browse and search Help topics about using Windows and your computer.
-

At the bottom of the right pane are two buttons: the Power button and the Lock button. Click the Power button to turn off your computer, or click the Lock button to lock your computer without turning it off. Once locked, your computer cannot be used until you unlock it with your password.

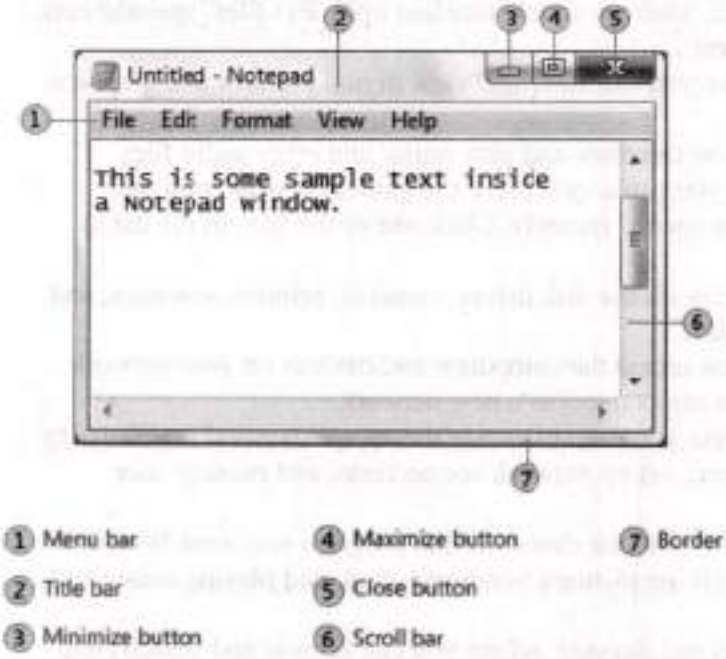
Clicking the arrow next to the lock button displays a menu with additional options for switching users, logging off, restarting, or shutting down.

Working with windows

Whenever you open a program, file, or folder, it appears on your screen in a box or frame called a window (that's where the Windows operating system gets its name). Because windows are everywhere in Windows, it's important to understand how to move them, change their size, or just make them go away.

Parts of a window

Although the contents of every window are different, all windows share some things in common. For one thing, windows always appear on the desktop—the main work area of your screen. In addition, most windows have the same basic parts:



Parts of a typical window

- Title bar. Displays the name of the document and program (or the folder name if you're working in a folder).
- Minimize, Maximize, and Close buttons. These buttons hide the window, enlarge it to fill the whole screen, and close it, respectively (more details on these shortly).
- Menu bar. Contains items that you can click to make choices in a programScroll bar. Lets you scroll the contents of the window to see information that is currently out of view.
- Borders and corners. You can drag these with your mouse pointer to change the size of the window.

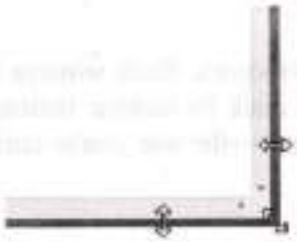
Other windows might have additional buttons, boxes, or bars. But they'll usually have the basic parts, too.

Moving a window

To move a window, point to its title bar with the mouse pointer . Then drag the window to the location that you want. (Dragging means pointing to an item, holding down the mouse button, moving the item with the pointer, and then releasing the mouse button.)

Changing the size of a window

- To make a window fill the entire screen, click its Maximize button or double-click the window's title bar.
- To return a maximized window to its former size, click its Restore button (this appears in place of the Maximize button). Or, double-click the window's title bar.
- To resize a window (make it smaller or bigger), point to any of the window's borders or corners. When the mouse pointer changes to a two-headed arrow (see picture below), drag the border or corner to shrink or enlarge the window.



Drag a window's border or corner to resize it

- A window that is maximized cannot be resized. You must restore it to its previous size first.

Hiding a window

Hiding a window is called minimizing it. If you want to get a window out of the way temporarily without closing it, minimize it.

To minimize a window, click its Minimize button . The window disappears from the desktop and is visible only as a button on the taskbar, the long horizontal bar at the bottom of your screen.

Taskbar button

To make a minimized window appear again on the desktop, click its taskbar button. The window appears exactly as it did before you minimized it

Closing a window

Closing a window removes it from the desktop and taskbar. If you're done with a program or document and don't need to return to it right away, close it.

To close a window, click its Close button .

Note

If you close a document without saving any changes you made, a message appears that gives you the option to save your changes.

Switching between windows

If you open more than one program or document, your desktop can quickly become cluttered with windows. Keeping track of which windows you have open isn't always easy, because some windows might partially or completely cover others.

Using the taskbar. The taskbar provides a way to organize all of your windows. Each window has a corresponding button on the taskbar. To switch to another window, just click its taskbar button. The window appears in front of all other windows, becoming the active window—the one you're currently working in.

Clicking the Calculator taskbar button brings its window to the front

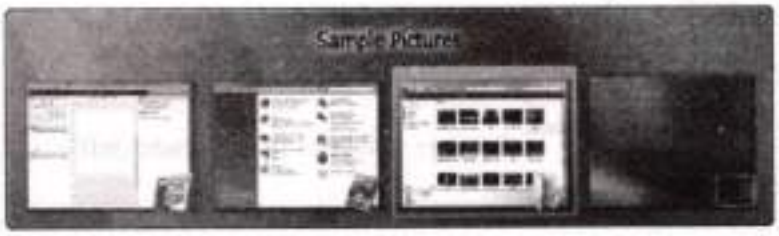
To easily identify a window, point to its taskbar button. A small picture called a thumbnail appears that shows you a miniature version of the window. This preview is especially useful if you can't identify a window by its title alone.

Point to a taskbar button to see a window preview

If the taskbar becomes too crowded with buttons, then the buttons for the same program become grouped into a single button, as shown in the picture below. Click the button to see a menu of the items in the group, then select an item to make it the active window

Three Paint windows grouped into one taskbar button

Using ALT+TAB. You can switch to the previous window by pressing ALT+TAB, or cycle through all open windows and the desktop by holding down ALT and repeatedly pressing TAB. Release ALT to show the selected window.



Switching windows with ALT+TAB

Using Windows Flip 3D. Windows Flip 3D arranges your windows in a three-dimensional stack that you can quickly flip through. To use Flip 3D:

1. Hold down the Windows logo key and press TAB to open Flip 3D.
2. While holding down the Windows logo key, press TAB repeatedly or rotate the mouse wheel to cycle through open windows. You can also press RIGHT ARROW or DOWN ARROW to cycle forward one window, or press LEFT ARROW or UP ARROW to cycle backward one window.

3. Release the Windows logo key to display the frontmost window in the stack. Or, click any part of any window in the stack to display that window.

Switching windows with Flip 3D

Arranging windows automatically

Now that you know how to move and resize windows, you can arrange them however you like on your desktop. You can also have Windows automatically arrange them in one of three ways: cascading, vertically stacked, or side by side.

Arrange windows in a cascade (left), vertical stack (center), or side-by-side pattern (right)

To choose one of these options, right-click an empty area of the taskbar, then click Cascade Windows, Show Windows Stacked, or Show Windows Side by Side.

Dialog boxes

A dialog box is a special type of window that asks you a question, allows you to select options to perform a task, or provides you with information. You'll often see dialog boxes when a program or Windows needs a response from you to continue.

Dialog box

Unlike regular windows, most dialog boxes can't be maximized, minimized, or resized. They can, however, be moved.

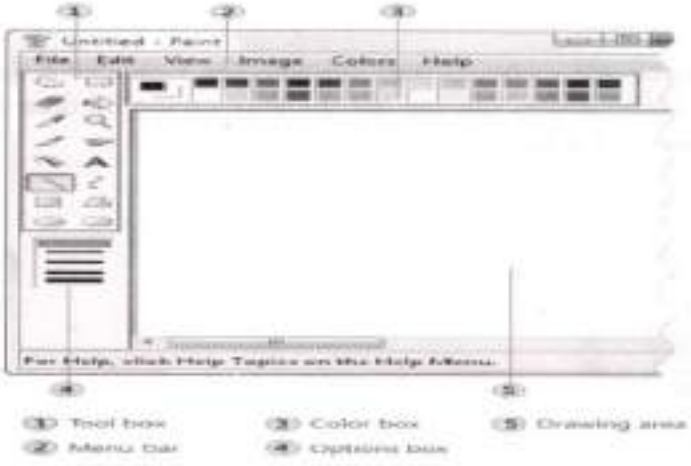
Using Paint

Paint is a program used to draw, color, and edit pictures. You can use Paint like a digital sketchpad to make simple pictures and creative projects or to add text and designs to other pictures, such as those taken with your digital camera.

The parts of Paint

To open Paint, click the Start button, click All Programs, click Accessories, and then click Paint.

When you start Paint, you see a window that is mostly blank, with just a few tools for drawing and painting. The following illustration shows the different parts of the Paint window:



The Paint window

Working with tools

Paint includes a handy collection of drawing tools in the toolbox. You can use these tools to create freehand drawings and add a variety of shapes to your pictures.

Draw a line

Some tools, like the pencil, brush, line, and curve, let you make a variety of straight, curved, and wiggly lines. What you draw is determined by how you move the mouse as you draw. You can use the line tool to draw a straight line, for example.

1. In the toolbox, click the Line tool.
2. In the Color box, click the color you want to use.
3. To draw, drag the pointer across the drawing area.

Draw a squiggly line

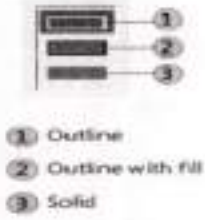
Your drawings don't have to be composed of just straight lines. You can use the Curve tool to create smooth curves, for example. The Pencil and Brush can be used to make completely random, free-form shapes.

1. In the toolbox, click the Pencil tool.
2. In the Color box, click the color you want to use.
3. To draw, drag the pointer across the drawing area.

Draw a shape

Some tools, like the Rectangle and ellipse, let you add shapes to your drawing. The technique is the same regardless of which shape you choose. For example, you can use the Polygon tool to draw a polygon, which is a shape that can have any number of sides.

1. In the toolbox, click the Polygon tool.
2. In the Options box, click a fill style:



Fill options

- Outline. Your shape will be just an outline, with a transparent interior.
- Outline with fill. Your shape will be filled with the current background color. (To set a background color, in the Color box, right-click a color.)

- Solid. Your shape will be filled with the current background color, but it will not have any outline.

3. To add a polygon, drag the pointer across the drawing area, and then click to end the first side.
4. Drag the pointer to create the next side, and then click to end the side. Repeat this as needed for additional sides.
5. To create the final side and close the polygon, double-click.

Erase part of your picture

If you make a mistake or simply need to change part of a picture, use the eraser. By default, the eraser changes any area you erase to white, but you can change the eraser color. For example, if you set the eraser color to yellow, anything you erase turns to yellow.

1. In the toolbox, click the Eraser tool.
2. In the Color box, right-click the color that you want to erase with. If you want to erase with white, you don't have to select a color.
3. Drag the pointer over the area you want to erase.

Changing the effect of the drawing tools

The Options box, located below the toolbox, is where you can change how a tool draws. You can set the thickness of the tool's brush (which affects the weight of what you draw on the screen) and whether the shapes you draw are outlined or solid.

Change the brush stroke of the Brush

1. In the toolbox, click the Brush tool.
2. In the Options box, click the brush shape you want to paint with.

Picture of brush options

3. To paint, drag the pointer across the drawing area.

Saving a picture

Save your picture frequently to ensure that you don't accidentally lose your work. To do that, on the File menu, click Save. This saves all of the changes you made to the picture since the last time you saved.

The very first time that you save a new picture, however, you will need to give your picture a file name. Follow these steps:

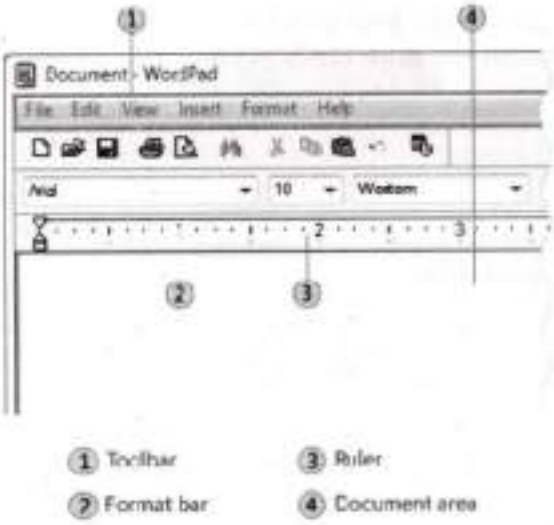
1. On the File menu, click Save.
2. In the Save as type box, select the file format you want.
3. In the File name box, type a name.
4. Click Save.

Using WordPad

WordPad is a basic word processor that is included in Windows. A word processor is a computer program that you can use to create, edit, view, and print text documents. With WordPad, you can type letters, book reports, and other simple documents. You can also change how the text looks, quickly move sentences and paragraphs around, and copy and paste text within and between documents.

The WordPad window

To open WordPad, click the Start button, click All Programs, click Accessories, and then click WordPad.



WordPad window

There are four main parts of the WordPad window:

The toolbar. The toolbar contains buttons for basic commands, including saving and printing. To find out what a button does, rest your mouse pointer on it. A box pops up showing the function of the button.

The format bar. The format bar contains buttons that you can use to format the text in your document. For example, you can choose the font, color, and alignment of your text.

The ruler. Use the ruler to check the layout and placement of text in your document.

The document area. This is where you type your document, make changes to the text, and apply your formatting.

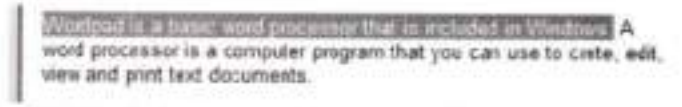
Typing text

When you're ready to get started, type in the document area of WordPad. A flashing vertical line called the cursor indicates where the next text that you type will appear. To move the cursor within text, click where you want the cursor to appear.

Unlike using a typewriter, when you type in WordPad you don't have to press ENTER to start a new line. WordPad will take care of that for you by automatically starting a new line when you reach the end of the one you're working on. When you want to start a new paragraph, press ENTER.

Selecting text

Whenever you want to do something to text in your document, such as copy it or format it, you need to select it first. To select text, position the mouse pointer to the left of where you want to begin your selection. With the pointer positioned, click and hold the left mouse button while you drag the pointer over the text that you want to select. The selected text will be highlighted. Once you've completed your selection, release the mouse button.



Text selected in Notepad

Copying and moving text

If you have text in one part of your document that you want to appear in another part, there are two ways to move the text around without having to retype it: You can copy and paste it to another location, or you can move it to another location.

When you copy text, it is placed in the Clipboard. You can then paste it in a different location. The original text is preserved.

When you move text to another location, the original text is not preserved. You might find this method useful when you want to rearrange the sentences and paragraphs in your document.

To copy text and paste it in another location

1. Select the text that you want to copy.
2. On the Edit menu, click Copy.
3. Move the cursor to the location where you want to insert the copied text.

4. On the Edit menu, click Paste.

Tip

To quickly copy text that you've selected, press CTRL+C. To paste it, press CTRL+V.

To move text to a different location

1. Select the text that you want to move.
2. Point to the text that you've selected, and then click and hold the left mouse button.
3. Drag the selected text to the place in your document that you want it to appear.

Inserting and deleting text

WordPad makes it easy to insert and delete text wherever you want. To insert text, click where you want to insert the text and then just start typing. To delete text, select the text that you want to delete, and then press DELETE.

Tip

If you make a mistake while you're editing the text in your document, you can always undo it. Press CTRL+Z to undo your last action.

Formatting your document

Formatting refers to the how the text in your document looks as well as how it is arranged. WordPad lets you easily change the formatting in your document. For example, you can choose from many different fonts and font sizes, and you can make your text almost any color you want. You can also easily change how your document is aligned.

To change the font, font style, or font size

1. Select the text whose formatting you want to change.
2. On the Format menu, click Font.
3. In the Font box, type or select the font you want to use.
4. In the Font Style box, type or select the font style you want.
5. In the Size box, type or select the size you want to use.

Tip

You can also use the commands on the format bar to change the font, font size, and font style.

To change the color

1. Select the text whose color you want to change.
2. On the Format menu, click Font.
3. Under Color, click the color that you want.

Here's a picture of a document with some different fonts and colors applied:

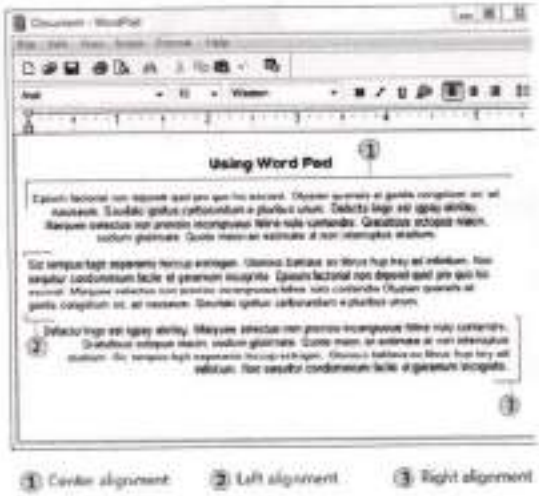
Text formatting in WordPad

To change the alignment

You can align the text in your document (or a paragraph in your document) to either the left margin, the center, or the right margin.

1. Select the paragraph whose alignment you want to change.
2. On the Format menu, click Paragraph.
3. In the Alignment box, click the alignment you want.

This picture shows how paragraphs look with different alignment:



Text alignment in WordPad

Saving your document

It's a good idea to save your document periodically while you are working on it so that in case your computer stops working for some reason, you won't lose any of your work. Saving the document will also allow you to come back to it later if you want to work on it again.

To save the document

- On the File menu, click Save.

  If you haven't saved the document yet, you'll be asked to provide a name for the document and location on your computer to save it to:

  1. In the Save in box, click the location where you want to save the document.
  2. In the File name box, type a name for your document.
  3. Click Save.

Printing your document

On the File menu, click Print. In the Print dialog box, use the Page Range box and the Number of copies box to specify which pages you want to print as well as how many copies. When you're done, click Print.

MS-Office

MS-WORD

2.1.1 About Ms-Office

Microsoft office is collection of software applications. All applications share some common programs and looks such as menu bars, tool bars, spell checking, and auto correct and help the office assistance etc., once you have learned how to use one of the office application then it is easy to learn all other applications. Ms-Office has several applications. Among them most common application are

1. MS-WORD.
2. MS-EXCEL.
3. MS-POWER POINT.
4. MS-ACCESS.

- **Ms-Word: -** Word is a word processing program. It is used to generate any type of printed document including letters, reports, memos, tables, web pages, newsletters, manuals & electronic mails.

- **Ms-Excel: -** Excel is a spreadsheet application that enables you to do mathematical calculations. It is used to prepare budgets and price costs, compare cost, format figure and to create graphs and charts.

- **Ms-Power Point: -** Power point is a presentation application that produces colorful professional presentation slides. It is used to create presentation slides over head transparencies, handouts and speaker notes. It enables us to include charts, graphs, produce organization chart, present tables and display a presentation as a fully animated screen show.

- **Ms-Access: -** Access is a relational data base application that stores, retrieves, and organizes data.

2.1.2 Word Basics

Word is a word processing programs. That is used to compose, edit, solve and printout text document. It replaces the job of typewriters in smooth and fast manner in addition to having more features. Basically word makes possible what a typewriter does, but in an efficient and economical way. In this document (text) can be entered and stored as electronic impulses instead of ink marks on papers. The main advantage is the matter can be changed as many times as we like and in any format without retyping the text and wasting the stationary. This is the basic that word offers to make what ever changes we need, without having to worry about all the retyping that search changes would normally involved in typewriter environment. There are many word processing programs naming a few: Word star, word, word perfect and Ms-word. Ms-word is a very popular word processing application from the trademarks of micro soft. You can use it for preparing all types of documents from simple, daily correspondence to impressive desktop publishing works.

2.1.3 Features of Word

1. Tool bars contains buttons that makes easy to perform some common tasks by clicking buttons like saving, printing, or centering task.
2. Macros help in automating with repeating tasks.

Templates and Wizards: Allows us to work on text documents that are predefined in layout and style and you can personalize them.

Mail merge: Provides an ability to create a letter in word, and then print multiple copies of that later. Each with a different name and address on it. Mail merge in word may also be used to fill envelopes and labels with data as well.

Tables Tools: Gives you great flexibility in creating and editing tables.

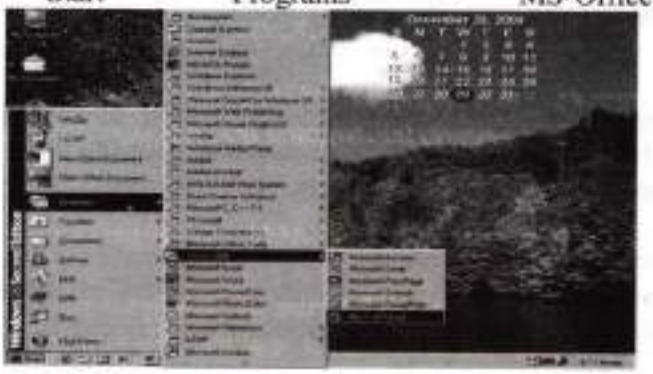
Text Boxes: These are used to keep text and graphics together, as you can have both text and graphics in a single text box.

Viewing: Word offers several ways to see documents such as normal web layout, web page, preview, zooming and out line, Print layout, print preview.

Find and Replace: Let us search any string of text and replaces with an other text. All occurrences of of first string will be replaced with another string.

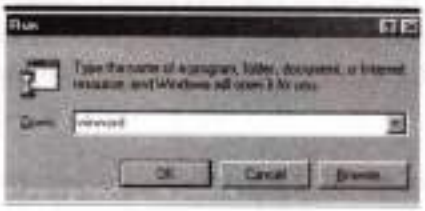
2.1.4 Starting with MS-Word

1. Start → Programs → MS-Office → MS-Word



2. Desktop on MS-Word Icon.

3. Start → Run → WinWord (Type).



On starting word you would see a word main screen with the tip of the day. These tips are words they are teaching you new tricks and techniques while you work. Most of these tips are quit in formative and some are even entertaining.

2.1.5 Components of MS-Word

Parts of Word Window:

1. **Title bar:** This tells you which application package is currently running and which document is currently open.

2. **Menu bar:** This is the traditional windows style drop-down menu. When you point to any menu title and click once with mouse, the menu will open, displaying all the commands available under this menu title. Clicking on the desired command would tell word to execute that command.

3. **Standard Tool bar:** Tool bars contain buttons; drop-down menus and other controls that help you quickly alter that appearance and arrangement of documents by executing a variety of word commands. This standard tool bar contains icons for basic functions like opening files, saving files, printing file, cut, copy, paste etc.

4. **Formatting Tool bar:** This contains icons for changing the look of your text. For example there are icons for changing fonts styles, font size, text alignment etc.

5. **Ruler:** The ruler lets you make changes to margins, indent and help you create document as per dimensions required.

6. **Scroll Tools:** These help you travel with in your document .You can go where, up and down, right and left in your document mainly of two ways : using the horizontal and vertical scroll bars with the help of the mouse; or using the key board to press page up, page down, home, end and arrow keys.

7. **Status bar:** Also called the status area, this is normally the last line on you screen.

   This gives the following information.
   1. Current page.
   2. Section number.
   3. Current/ total page in the document.
   4. Current cursor position.
   5. Current line number
   6. Current column number.
   7. Record Macro.
   8. Track revision.
   9. Extend selection.
   10. Over type mode.
   11. Help forward perfect users.

8. **Cursor:** Also called the insertion pointer, these denote the place where text, graphic or any other item would be placed when you type, over write or insert them.

9. **Caption Buttons**: Minimize, Maximize, Restore and close button.

10. **Mouse Pointer:** When your mouse pointer should be able to move it freely about the screen.

Mouse Operations:

1. **Pointing:** Move the mouse pointer until the pointer is on the desired item.
2. **Clicking:** Move the mouse pointer to the position you want, then press the mouse left button once.
3. **Double-Clicking:** Move the mouse pointer to the position you want, then press the mouse left button twice in rapid succession. Alternatively if your mouse has been so installed, you can also click the middle button once, instead of pressing the left button twice.
4. **Right-Clicking:** In some cases like changing the properties of on object, or for correcting a mis-spelt word, or even for cut, copy and paste- the mouse right button can be used. In such cases simply select the object and click once on the mouse right button.
5. **Dragging:** Move the mouse pointer to the right place highlight the desire text by clicking once in the beginning and releasing the left button at the end, then click once again in the highlighted block, keep the mouse left button and roll the mouse to move the block to a new location by releasing the left button at the desired location.

Keyboard Operations:

1. **Typing Keys:** The part of the keyboard, which is used to type letters, numbers and other characters. The alphabets layout resembles a standard typewriter keyboard exactly, however there some extra keys for entering commands, Ex: ctrl key, alt key, shift key, enter key etc.
2. **Shift and Caps Lock Key**: The shift key is used to type capital letters i.e. if you want to type the letter "F", you have to press the shift key, keep it pressed with one finger and press "f" key with the other. However, if you want to type an entire word or a sentence in capital letters, use the *Caps lock* key, Caps lock key is a toggle key and does not need to be pressed continuously.
3. **Function Keys:** The row of 10-12 keys-F1 to F12 above the typing keys are called the function keys and are used to execute special commands or as shortcuts keys. The use of these keys varies from program to program.
4. **Cursor control Keys:** A group of special keys used to control and navigate the cursor arrow keys (Up, Down, Left, and Right). *Home* and *End are* used to quickly place the cursor in the beginning or end of a line.
5. **Numeric Keypad:** The keys on the extreme right of the keyboard, which can be used both – to enter numbers or to move the cursor.

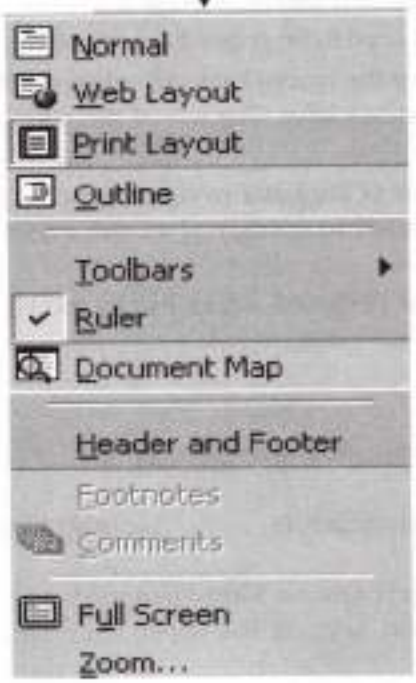
The most important Keys:

1. **Alt and Ctrl:** The command keys are used in combination with another key or with the mouse.
2. **Shift**: Like Alt and Ctrl, the shift key is also used in commands in combination with other keys.
3. **Enter:** When typing text, press enter when you want to produce a forced line feed.
4. **Esc:** The Esc key is located to the left of the function keys, in the upper left corner of the keyboard.
5. **Back space:** pressing this key deletes the character to the left of the corner.

File

Edit

View

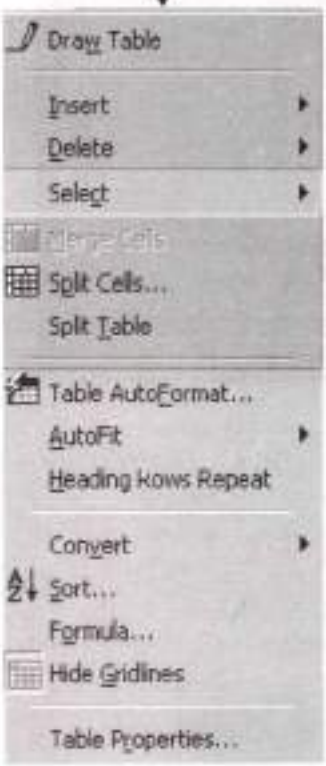


Insert

Format

Tools

Table



Window

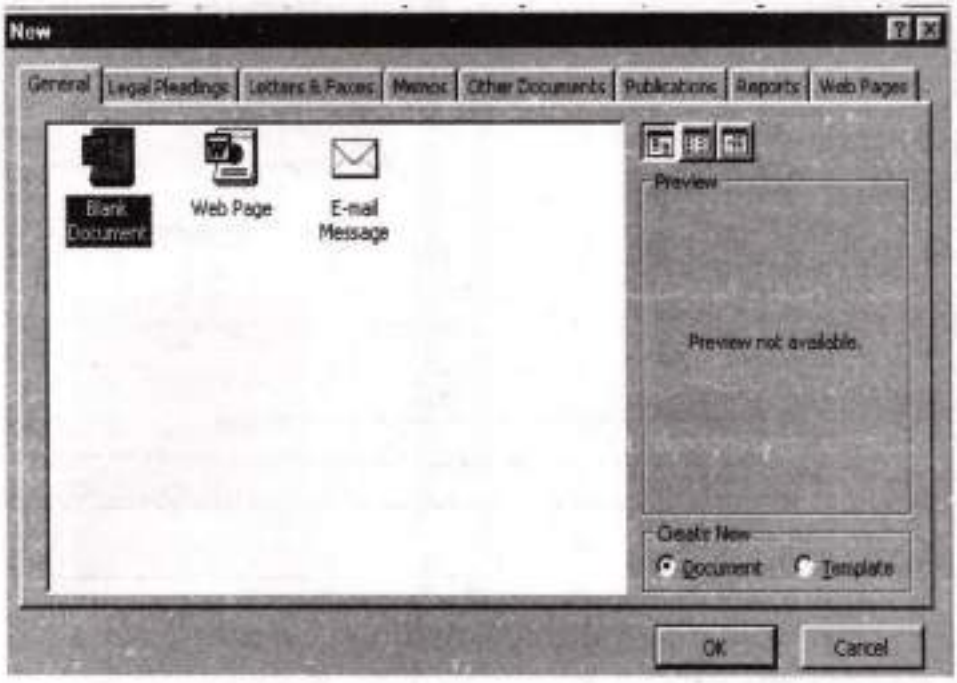
Help

2.1.6 File Menu

NEW: -Creating a document happens when you are planning to writing a new document or opening a word application. When a word application is open the new document is created.

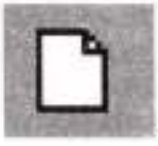
Procedure: -

1. Click **FILE** on the **MENU BAR.**
2. Select **New,** then the new dialog box appears as follows and select a general tab, under general tab select blank document or select any one of the variety of templates covering different types and styles of document.
3. Click **OK** button.



Alternatives: -

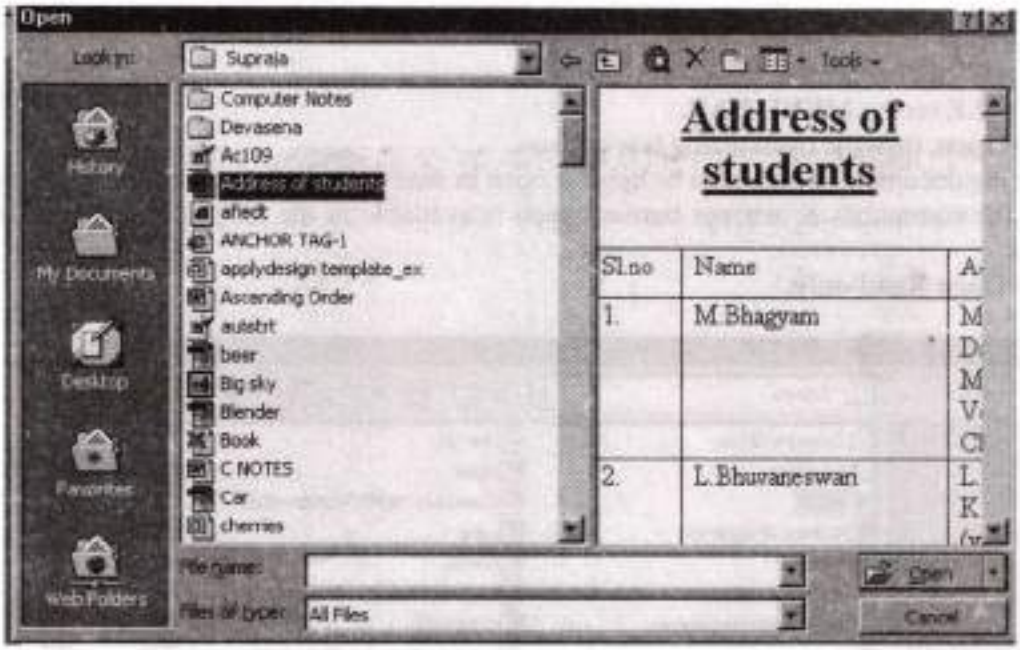
- MENU: - FILE, NEW.
- TOOL BAR: - STANDARD TOOL BAR, NEW BUTTON.
- KEYBOARD: - CTRL+N.


This is the button, which is in the standard tool bar to create a new file.

OPEN: - Opening a file happens for the existing documents.

Procedure: -

1. Click **FILE** on the **MENU BAR.**
2. Select **Open,** then the open dialog box appears as follows.
3. Select the document.
4. Click **Open** button (or) press the ENTER key on the keyboard (or) place the mouse pointer on the document which is to be open & double click it.



Alternatives: -

- MENU: - FILE, OPEN.
- TOOL BAR: - STANDARD TOOL BAR, OPEN BUTTON.
- KEYBOARD: - CTRL+O.

This is the button, which is in the standard tool bar to open an open dialog box.

To open the file as OPEN AS COPY: -

Procedure: -

1. Click **FILE** on the **MENU BAR.**

2. Select **Open,** then the open dialog box appears.
3. Select the document.
4. Click the commands & settings button which is available in the dropdown menu of the **open** button.
5. Select **Open as Copy.**

To open the file as OPEN Read Only: -

When a document is opened in **open read only** mode, word just permit to read the document. It does not allow you to save changes to the original file name. When you compel it to save the file it allows you to save the file with new name.

Procedure: -

1. Click **FILE** on the **MENU BAR.**
2. Select **Open,** then the open dialog box appears.
3. Select the document, which is to be open in open in read only mode from the open dialog box.
4. Click the commands & settings button which is available in the dropdown menu of the **open** button.
5. Select **Open Read-only.**

CLOSE: -This is used to close a current document. Not to close MS-WORD.
Procedure: -

1. Click **FILE** on the **MENU BAR.**
2. Click **CLOSE.**

Alternatives: -

- MENU: - FILE, CLOSE.
- TOOL BAR: - STANDARD TOOL BAR, CLOSE BUTTON.

This is the button, which is in the standard tool bar to CLOSE.

Save: - Saving happens when a new document is created (or) an existing document is modified.

Procedure: -

1. Click **FILE** on the **MENU BAR.**
2. Select **Save.** Then the save dialog box appears as shown below.
3. Type file name in the file name text box.
4. Select the folder under which it is saved.
5. Click **Save** button.

Alternatives: -

- MENU: - FILE, SAVE.
- TOOL BAR: - STANDARD TOOL BAR, SAVE BUTTON.
- KEYBOARD: - CTRL+S.

This is the button, which is in the standard tool bar to open a save dialog box.

SAVE AS: -This is used to make multiple copies.
Making Multiple Copies: - An existing document can be made to a number of copies having the same content but with different file names. This is just like copy command in MS-DOS.

Procedure: -

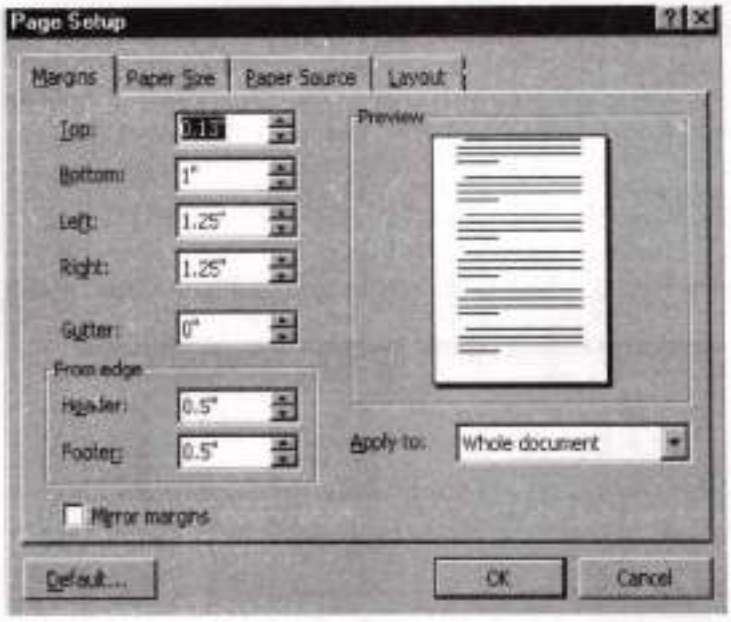
1. Open the existing document that is to be copied into
2. Click **FILE** on the **MENU BAR.**
3. Select **Save as.** Then the save dialog box appears as shown below.
4. Type file name in the file name text box.
5. Select the folder under which it is saved.
6. Click **Save** button.
7. Repeat the same procedure as many times as you want to make several multiple copies.

PAGE SET UP: -page set up sets margins, paper size, paper source, page orientation and other layout options for the active file.

MARGINS

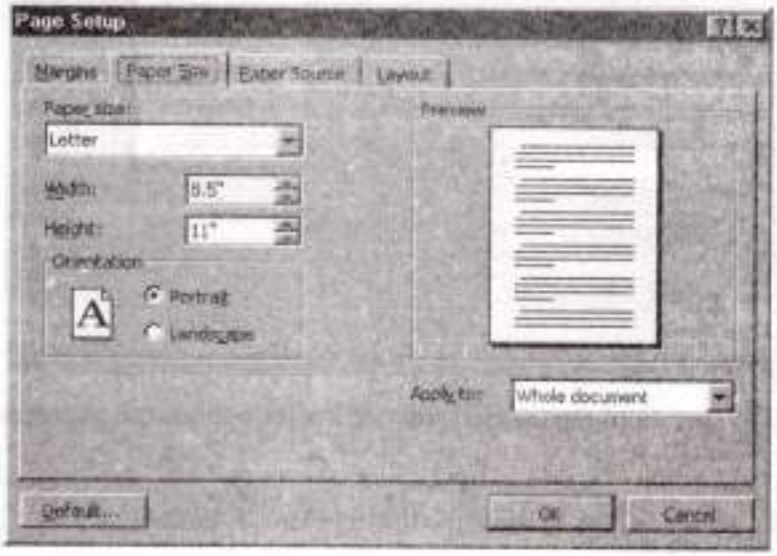
Margins are outer edges of the printed output on a sheet of paper. All four margins namely top, bottom, and left, right are adjustable. You words page margins are the blank spaces around the edges of the page.

- Click **File** on the menu bar.
- Select **Page setup.** Then it appears as shown below

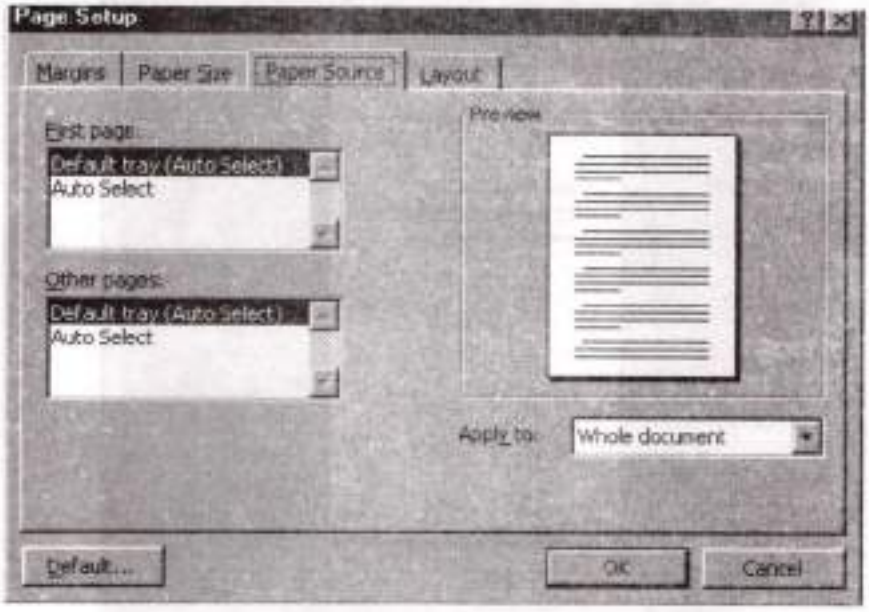


- Click the **Margin Tab.**
- Enter settings in the Left, right, Top, or bottom boxes to set the margins for the respective sides of the text.
- Select the **Gutter Position** either left or Top and click the **Gutter** boxes to set the distance from the top or bottom edges of the text for binding.
- Click the **from edge** field to set the distance from the page of both the header and the footer.
- Click the down arrow of the **Apply box** to select either the whole document or just selected text.

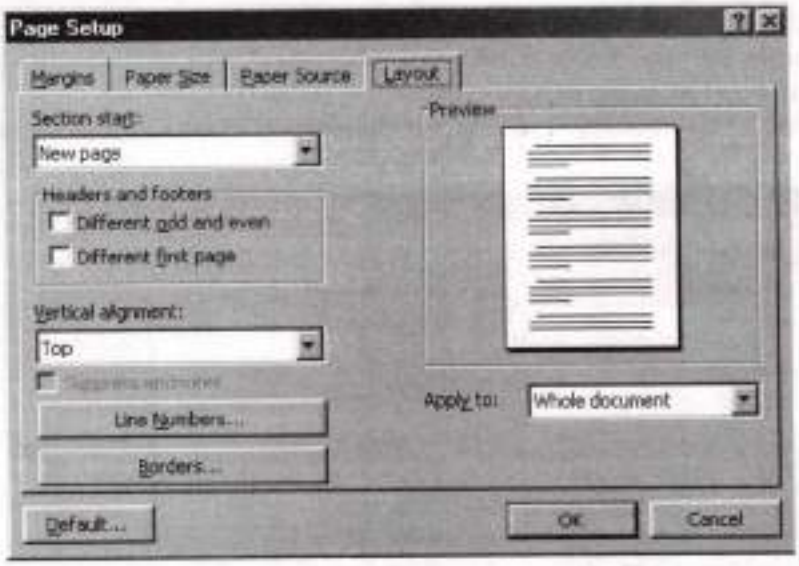
- Click the **default** button to save your new margin settings as the default settings for the current template.
- Tick off the **Mirror Margins** if you are printing on both sides of the paper. The inside margins of facing pages will have the same width that of the outside margins of facing pages.
- Tick off the **2 pages per sheet** to get two pages per sheet. For each modification you can see corresponding print preview in the preview field.
- Click the **OK** button to save changes made or the **Cancel** button not to save change made.



Paper Size: -It gives the size of the paper in the Paper_size text box. Select the paper size by clicking the down arrow of the Paper_size text box. Select whether paper is to be in Portrait or in the Landscape.



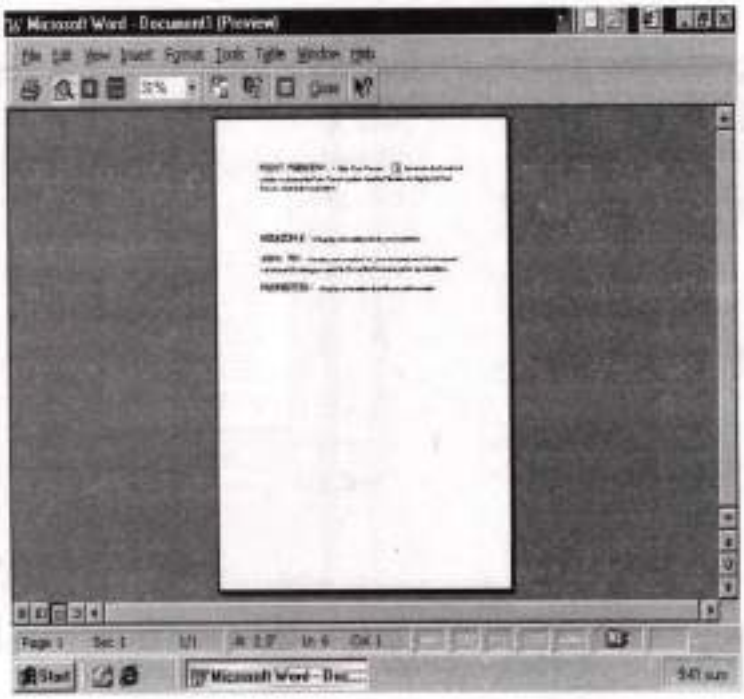
Paper source: It can select the first page option & also other page option the default tray selection will be appear. Preview will be available.



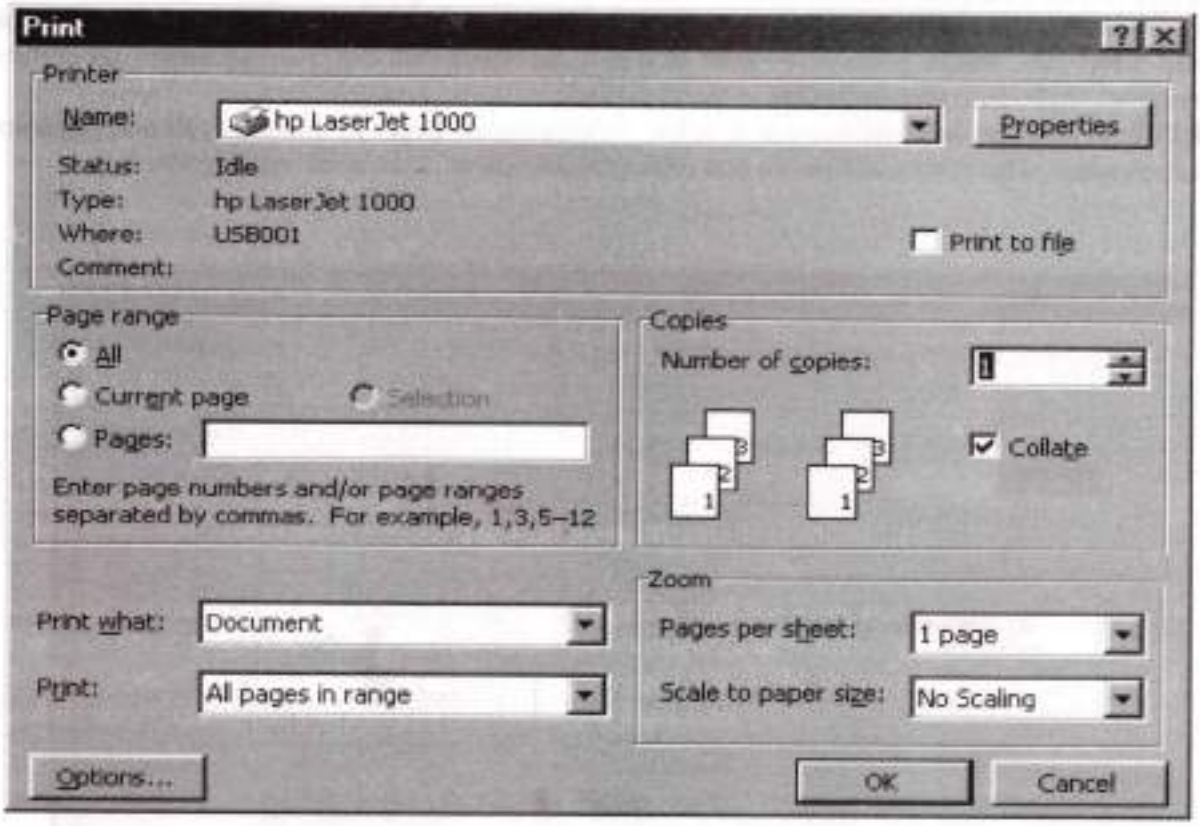
Layout: -It can be used to section of the page, Header & Footer options the alignments of top, bottom, justify, center.

It can also be used to the section of text to draw the line numbers & borders.

PRINT PREVIEW: - Click **Print Preview** **button** on the **Standard tool bar** or choose the **Print Preview** option from the **File** menu to display the Print Preview. Then it shows as below.



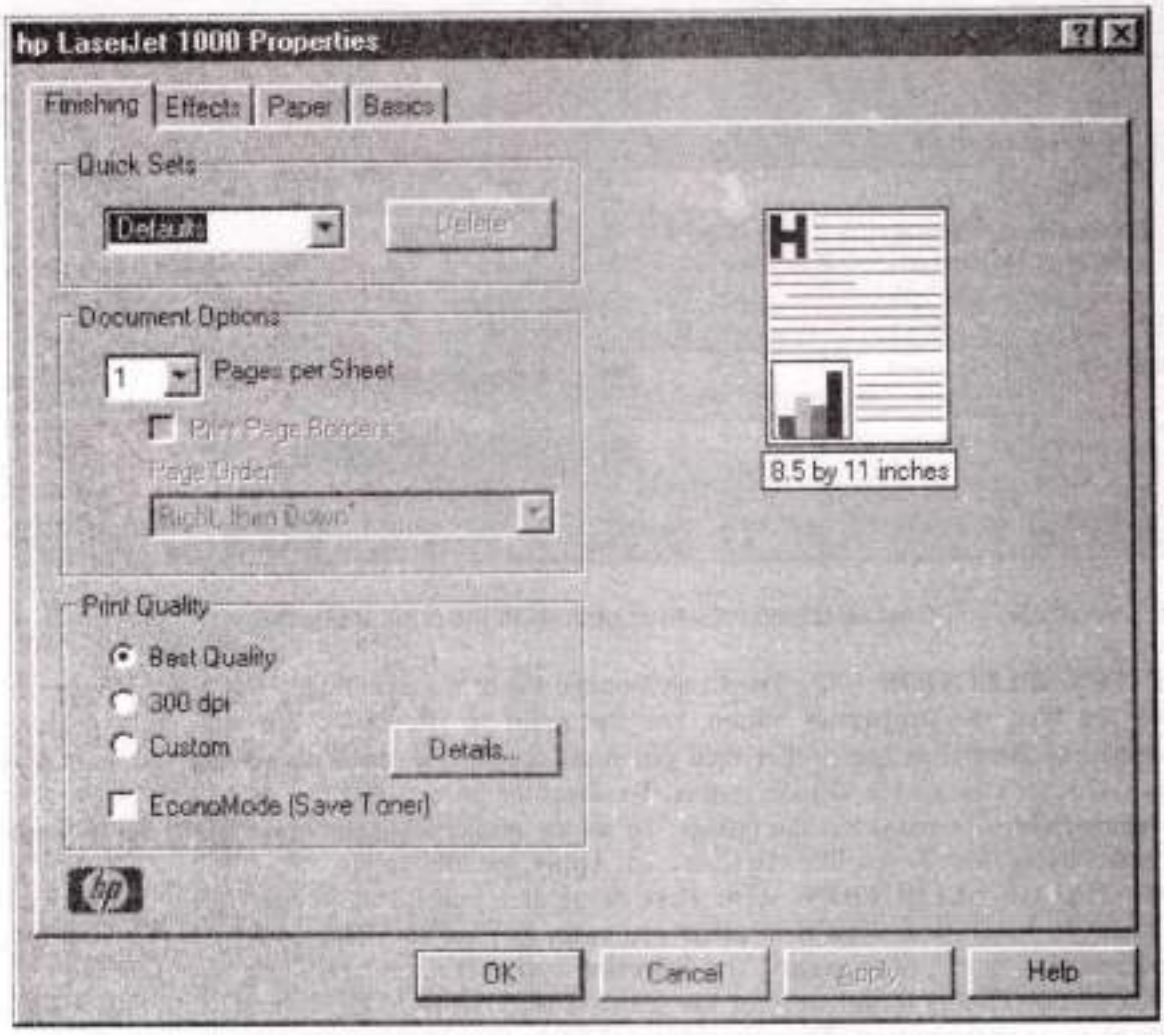
PRINT: - Printing means getting a hard copy of the information from a printer on the paper. To print active file or selected part, just click the printer button on the **Standard tool bar**. There are many options to print a document. To set the options click the **File menu** and select **Print., Or Press Ctrl+P** to display the print dialog box. Then the dialog box appears as follows.



To print a document you must select the following options in the print dialog box

- **PRINTER SELECTION: -** The Printer area on the top of the print dialog box has the **name drop down list box,** the **properties** button, and the **print to file** check box. If your computer is connected to more than one printer then you must specify the word which one you want to use otherwise it uses the system default printer. To select the printer click the drop down arrow next to the **Name field** lists and select the printer. To set the properties then click **PROPERTIES** button and select the options as you like and then click **Apply** and **Ok** button.
- **PAGE RANGE SELECTION: -** The Page range area enables us to specify the portion of the document to be printed. That is whether you want to print the selected text, a particular page, arrangement of pages, or all pages. The **Selection** option is dimmed till you have selected text in the document. This is useful to print the selected text. To print the current page then click the **Current page radio button.** To print a range of pages then click **pages radio button.** To print all pages click the **all radio button.**
- **COPIES SELETION: -** The Copies area has the **Collate check** box and the **number of copies increment box**. Enter the number of copies in the Number of copies increment box then the word automatically tick off the Collate check box.

- **ZOOM SELECTION: -** The Zoom area facilitates us to select the number of pages to be printed per sheet and the paper size on which you want to print the text. Enter the number of pages per sheet in the pages per sheet increment box. Click the drop down next to the **Scale to paper size** box and select the paper size on which you want to print the document from the drop down list.
- **PRINT WHAT SELECTION: -**Usually most of the time you print all or part of your document. But sometimes you may want to print other than the document like properties of the document. The **print what** box makes possible to print not only the document but also document properties, comments, style, auto text entries etc.,
- **PRINT: -**The **Print box** enables you to select for printing all pages in the range, all odd pages, or all even pages. This is available when you select the document in the print what option.



EXIT: - It quits from the Ms-word.

Alternatives
Menu: - File, exit.
Tool bar: - Close button on the title bar.
Key board: - <ALT + F, X>

Selecting Text and Graphics:

Select text by holding down SHIFT and pressing the respective key that moves the insertion point respective direction.

Press	To extend a selection
SHIFT+RIGHT ARROW	One character to the right
SHIFT+LEFT ARROW	One character to the left
CTRL+SHIFT+RIGHT ARROW	To the end of a word
CTRL+SHIFT+LEFT ARROW	To the beginning of a word
SHIFT+END	To the end of a line
SHIFT+HOME	To the beginning of a line
SHIFT+DOWN ARROW	One line down
SHIFT+UP ARROW	One line up
CTRL+SHIFT+DOWN ARROW	To the end of a paragraph
CTRL+SHIFT+UP ARROW	To the beginning of a paragraph
SHIFT+PAGA DOWN	One screen down
SHIFT+PAGE UP	One screen up
CTRL+SHIFT+HOME	To the beginning of a document
CTRL+SHIFT+END	To the end of a document
ALT+CTRL+SHIFT+PAGE DOWN	To the end of a window
CTRL+5	To include the entire document
CTRL+SHIFT+F8, and then use the arrow keys; press ESC to cancel selection mode	To a vertical block of text
F8+arrow keys; press ESC to cancel selection mode	To a specific location in a document

If you know the key combination to move the insertion point, you can generally select the text by using the same key combination while holding down SHIFT. For instance, CTRL+RIGHT ARROW move the insertion point to the next word, and CTRL+SHIFT+RIGHT ARROW select the text from the insertion point to the beginning of the next word.

Extend a selection

Press	To
F8	Turn extend mode on
F8, and then press LEFT ARROW or RIGHT ARROW	Select the nearest character
F8(press once to select a word , twice to select a sentence , and so forth)	Increase the size of a selection
SHIFT+F8	Reduce the size of a selection
ESC	Turn extend mode off

Selection with Mouse: -The basic method of selecting text is as follows.

- Move the mouse pointer, to the character from where selection starts.
- Click the left mouse button and hold it down.
- Drag the mouse pointer over the character or characters till the end character.
- Release the mouse Pointer.

The following are the selecting text with the mouse and they are:

Character Selection: - Hold down the left mouse button drag to the single character and release the button.

Word Selection: - Place the mouse pointer any where on the word, double click the left mouse button then the entire word will be selected.

Line Selection: - Move the mouse pointer to the left of the **selection bar** which **changes** the shape of the **mouse pointer**, now click the **left mouse button** only **once to select** an entire line.

Sentence Selection: - Hold down the **Control Key** on the key board click the left mouse button any where in the sentence which selects the entire sentence.

Paragraph Selection: - Move the mouse pointer anywhere in the paragraph to be selected, **Triple click** the left mouse button that selects the entire paragraph.

Entire Document Selection: - Move the mouse entire, anywhere to the selection bar, hold down CTRL key on the keyboard **Click the primary mouse button,** then the entire document will be selected.

Picture Selection: - Click anywhere within the picture that signals the border surrounded with handles (small Black Boxes) as selection of the picture.

2.1.7 Edit Menu

UNDO:

UNDO cancels (undoes) the last action that you have just performed. When you open a new document the Undo is inactive before the first action. As soon as performing actions starts the number of undos incremented. The last action will be the first action.

There are two ways to undo. Undo the last action and undo the selected actions from the last action.

Procedure: -

UNDO THE LAST ACTION: - Do any one of the following

- Select the **UNDO** from **EDIT Menu.**
- **CTRL+Z.**
- Click the **UNDO** button on the **Standard Tool bar.**

Repeat the steps, as many times you want.

Undo the Selected Action: - In the drop down list of undo, a list of items of previous actions are available in the sequence such that if you want to select the third item in the list for undoing, it automatically select the first and second items.

- Click the down arrow next to the **UNDO button on the standard tool bar.**
- Select the sequence of items to be undone moving the mouse on the items or scrolling the items.
- Click the left mouse button.
- All the selected items or actions will get undone.

REDO:

REDO cancels the UNDO action that you have just performed. It means it redoes an action that you have just undone it. In other words Redo undoes the recent Undo. When you open a new document the Redo is inactive before the first undo action. As soon as performing undos starts the number of redos incremented. The last undone action will be the first redone.

There are two ways to redo. Redo the last action and Redo the selected actions from the last action.

Procedure: -

REDO THE LAST ACTION: - Do any one of the following

- Select the **REDO** from **EDIT Menu.**
- **CTRL+Y.**
- Click the **REDO** button on the **Standard Tool bar.**

Repeat the steps, as many times you want.

Redo the Selected Action: - In the drop down list of redo, list items of undone actions are available in the sequence such that if you want to select the third item in the list for redoing, it automatically select the first and second items.

- Click the down arrow next to the **REDO button on the standard tool bar.**
- Select the sequence of items to be redone moving the mouse on the items or scrolling the items.
- Click the left mouse button.
- All the selected items or undone actions will get redone.

REPEAT: - Repeat repeats only the last action that you have just done but it does not repeat the actions before the last action.

Procedure: -
Do any one of the following

- Select the **REPEAT** from **EDIT Menu.**
- **CTRL+Y.**
- **PRESS F4.**

Repeat the steps, as many times you want.

Cut: - Cut text in Office application stands for the original text is removed from where it was and placed it into the Office clipboard.

Procedure: -

- Select the text to be **CUT.**
- Select **CUT** From **EDIT MENU.**

Alternatives

Menu: - Edit, Cut.
Tool bar: - Cut button on Standard tool bar.
Key board: - <ALT + E, T>, <CTRL+X>.

Copy: -Copy text in office application stands for a copy of the text is placed in the office clipboard and the original text stays where it was.

Procedure: -

- Select the text to be copied.
- Select copy from **Edit** menu.

Alternatives for copy: First select the text to be copied and use any one the following alternatives to copy the selected text in to the clipboard.

Menu: -Edit copy.
Toolbar: copy button on standard toolbar.
Keyboard: <Alt+E, C> or <Ctrl + C>.

Paste: - Paste stands for inserting the contents of the clipboard at the insertion point, and replace any selection. This command is available only if the selection is either copy or cut; paste is done in two methods.

- Copy and paste
- Cut and paste

1. **Copy and Paste: -**This combination is useful when a particular text is copied from one place to any other place in the office application.

   - Select the text to be copied, which can be in some document or in another document.
   - Copy it by using the above methods.
   - Switch to the document where the text to be pasted into.
   - Put the insertion point where paste starts.
   - Select **paste** option from **Edit menu (Ctrl+V).**

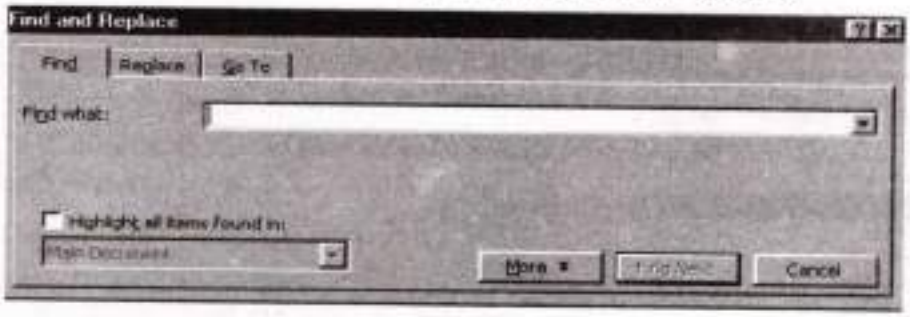
2. **Cut and Paste: -**This combination is useful when a particular text is to be deleted from one place and insert it into any other place in the office document.

   - Select the text to be **cut**, which can be in some document or in another document.

- Cut it by using the above methods.
- Switch to the document where the text to be pasted into.
- Put the insertion point where paste starts.
- Select **paste** option from **Edit menu**
- **Alternatives**
- **Menu:** Edit, Paste.
- **Keyboard: <Ctrl+v> , <Alt + E ,P)**

FIND: - Find is used to find any word in the document.
Suppose if you want to find a word **"MS-WORD"**, and then do the following procedure:-

- Click **Find** from **Edit menu.** The find dialog box will appears as follows.



- Type the word "**MS-WORD**" in the **Find what:** text box.
- Click the **Find Next** button, to find that word and repeat this process until conformation dialog box opens informing you that word has finished searching the document.
- Click **OK.**

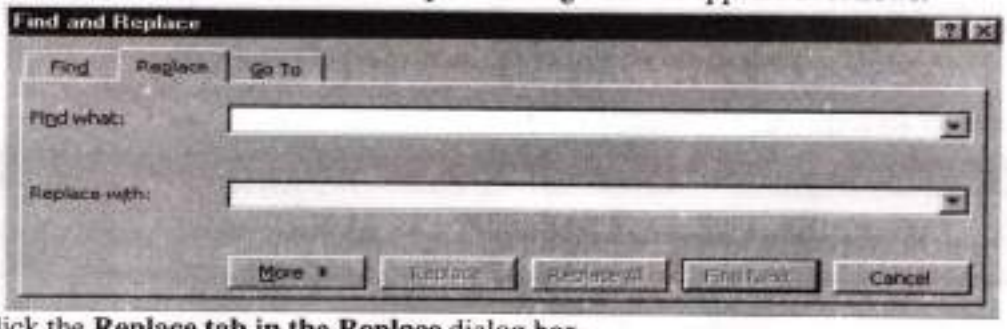
Alternatives

Menu: - Edit, Find.
Key board: - <ALT + E, F>, <CTRL+F>.

REPLACE: - Replace is used to replace any word in the document.

Suppose if you want to replace the word **"INVOICE"** with the word **"Sales"**, and then do the following procedure:-

- Click **Replace** from **Edit menu.** The Replace dialog box will appears as follows.



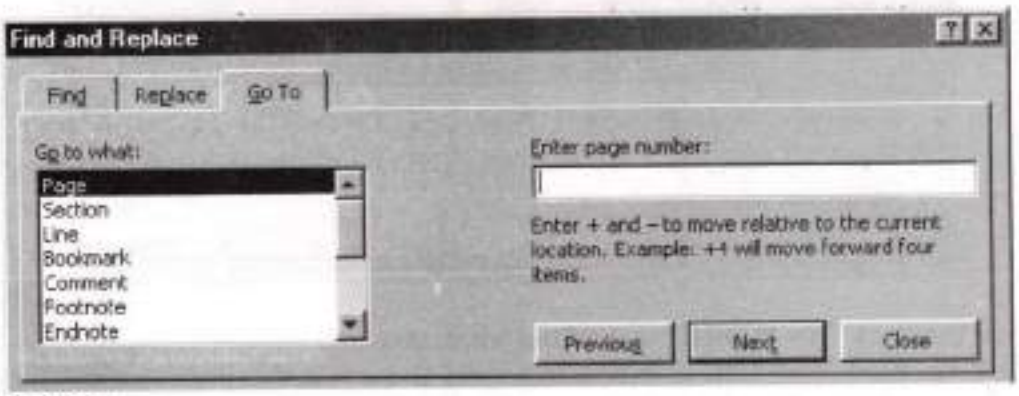
- Click the **Replace tab in the Replace** dialog box.

- Type the word **"Invoice"** in the **Find what:** text box.
- Type the word **"Sales"** in the **Replace With:** text box.
- Click the **Replace** push button.
- Click **OK.**

Alternatives

Menu: - Edit, Replace.
Key board: - <ALT + E, E>, <CTRL+H>.

Go to: Invites you to go directly to a page, section, bookmark, or any other object within the current document.



Menu: - Edit, Goto.
Key board: - <ALT + E, G>, <CTRL+G>.

COMMENTS: - Displays all comments made by all reviewers in the comment pane.

Footnotes: - Foot Notes explain, comment on, or provide references for text in a document. Foot Notes appear at the end of each page in a document.

2.1.8 HEADERS & FOOTERS

HEADERS: - Header is an area used to place repetitive information across the top of each page in a document.

FOOTER: - Footer is an area used to put repetitive information across bottom of each page in a document.

Create a header or footer:

- Click the **View** menu, and select **Header and Footer.** It displays the **Header and Footer** toolbar illustrated as follows.

- In Header and footer toolbar insert auto text, insert page number, insert number of pages, insert date, insert time and switch between Header /footer options available.

- You may choose what ever you want.

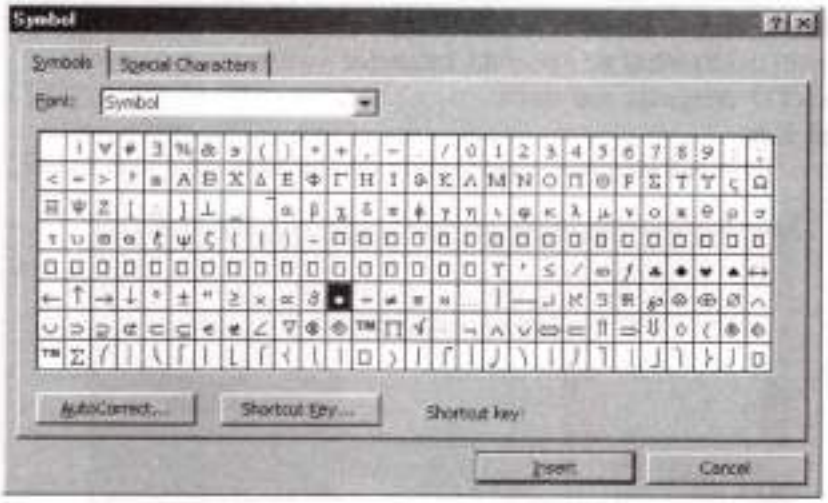
- The switch between header /footer allows you to move the cursor header to footer and vice versa.

2.1.9 Insert Menu

Symbol: -Inserts **Symbol & Special Characters** from the fonts that are installed on your computer. Symbols and Special Characters are not available on the keyboard can be inserted using **Symbol** feature or keyboard shortcuts.

Procedure to Insert a Symbol: -

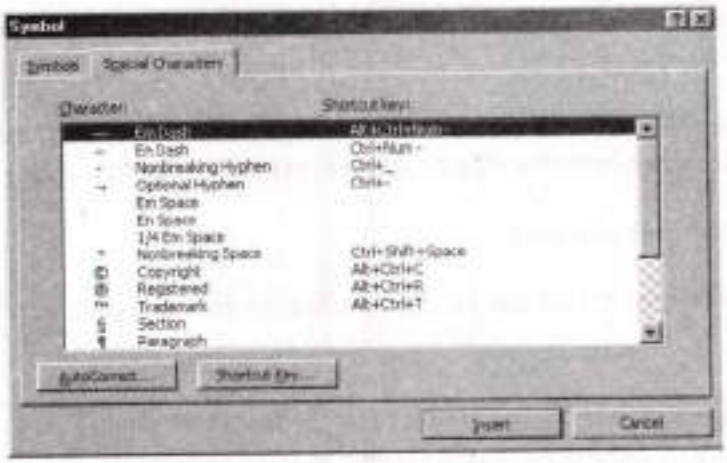
- Put the insertion point where you want to insert the symbol
- Click **Symbol** from **Insert** menu. Then it shows the dialog box as below
- Click **Symbol Tab** in the Symbol dialog box.



- In the font box, click the font that you want.
- If you want a close up view of a symbol click it.
- Double click the symbol that you want to insert or select the symbol and click Insert button. The symbol dialog box remains open to insert more symbols till you click close.

Procedure to Insert a Special Character: -

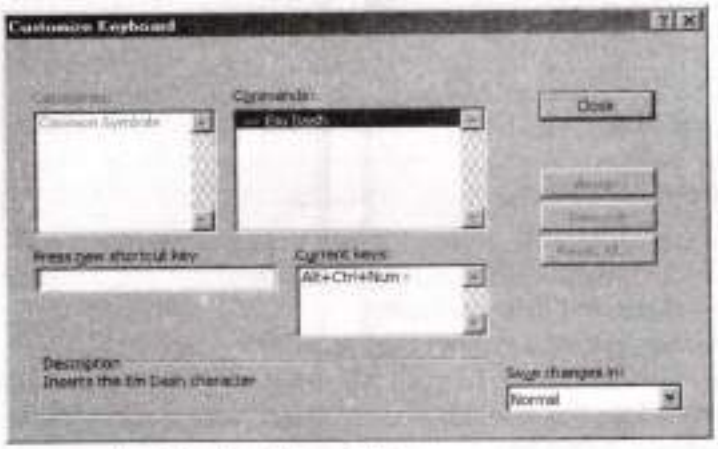
- Put the insertion point where you want to insert the symbol
- Click **Symbol** from **Insert** menu. Then it shows the dialog box as below



- Click **Special Character Tab** in the Symbol dialog box.
- Double click the character that you want to insert or select the symbol and click Insert button. The symbol dialog box remains open to insert more symbols till you click close.

Procedure to assign a Shortcut key to a Symbol: -

- Click **Symbol** from **Insert** menu.
- Click the tab with the **Symbol or Special Character** you want.
- Click the Symbol or character you want.
- Click **Shortcut Key**
- In the Press new **Shortcut Key** box, type the key combination you want to use.
- Click **Assign.**



COMMENT- Inserts a comment at the insertion point.

PICTURE: - Inserts picture from clip art or a picture for the clip gallery or you can insert a picture or a scanned photo that you can import from other programs and locations. You can also insert music, sound, or a video clip on a slide where you want it to play during a slide show.

Sound, music, videos, and animated pictures are available in the Clip Gallery.

Procedure to insert a picture from Clip Gallery: -

- Put the insertion point where you want to insert the picture.
- Click Insert **Clip art** on the drawing tool bar, and then click the **Pictures** tab or **Insert → Picture → Clip Art** as shown in fig 2.
- Click the category you want from the **Clip Art.**
- Then click the graphic you want and then click Insert clip on the short cut menu.
- When you are done using the clip gallery, click the close button on the clip gallery title bar. The simplest method is to drag a picture from the clip gallery to your document.

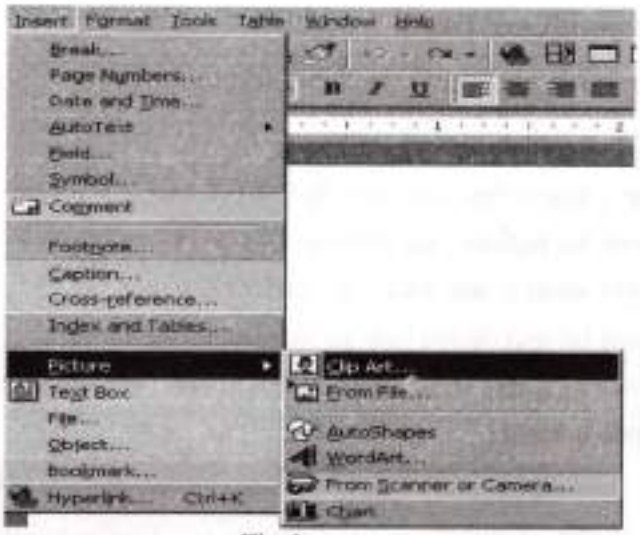


Fig 1

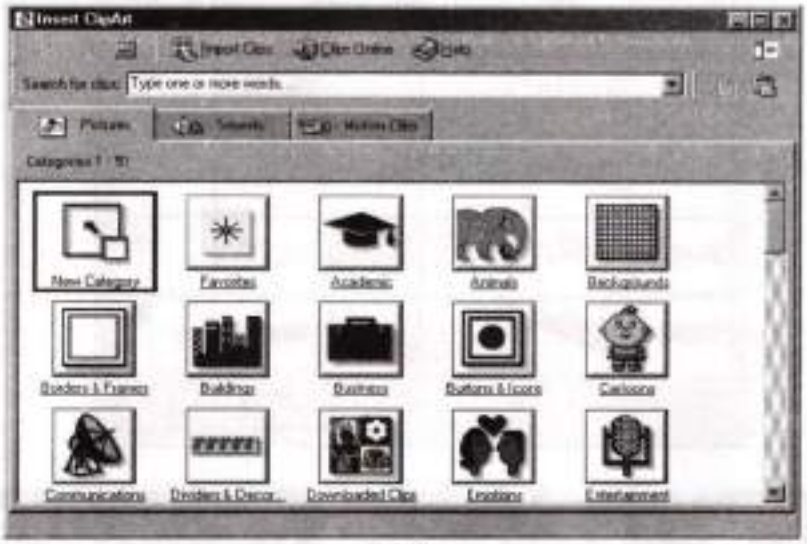
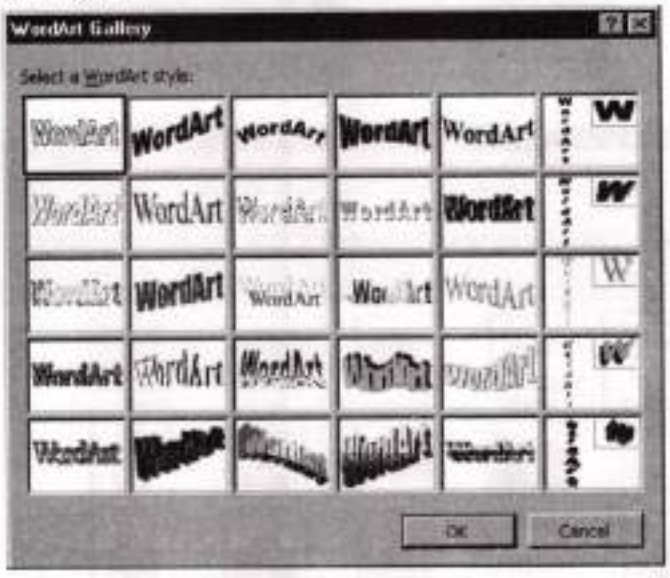


Fig 2

Special effects using Microsoft word Art: -

Using Microsoft WordArt we can create special graphic effects for logos, headings, or attractive graphics.

- To start word Art, choose Insert→picture and click WordArt.
- We can the present word Art options shown here.
- Select the design that you want to use, and then click **OK**
- It displays the Edit WordArt text dialog box, as shown in figure above.
- When you click **Ok,** word display the graphic selected and surrounded by handles, along with the word Art toolbar, as shown here.



MICROSOFT OFFICE

2.1.10 Format Menu

Formatting

Formatting is a process to change the appearance of the text documents to be attractive, easier to read. Formatting is a separate stage often takes place after the document has been entered. The interesting way of applying and changing formats lets you play with a document's design. The following table shows some buttons on the formatting toolbar.

Font

Font is a set of characters that make up one member or style of a particular typeface. The character set includes all letters (A to Z) in both upper and lowercase; numbers; plus other symbols.

Procedure: -

- Click the **Font** from **Format menu.** Then it opens the dialog box as shown in below.

❖ **Using toolbar**

1. Selected the text to be effected.
2. Click the down arrow of the font button on the formatting toolbar. In this drop-down list, many varieties of font styles are listed. Select one. At the top the fonts used most recently are listed.

❖ **Using font box**

1. Select the text to be effected.
2. Right-click on the text and choose font from the context menu, or select font from the format menu to display font dialog box. If the font tab is not displayed, click it to bring it to the font dialog box.
3. Select the font from the font list box. In the font list box an alphabetical order of all fonts are listed.
4. Click OK buttons. Steps 3 and 4 can be done at a time just double clicking the font in the font box.

Font size

Font size is defined as dimensions of a character in terms of length, width, and height. It determines how large each letter will appear. It is measured in units called points represented by a positive integer. By clicking on the drop down list of font size, necessary font size can be selected.

2.1.11 Mail merge:

Mail merge is an ability to create a letter in word and then print multiple copies of that letter, each with a different name and address on it. Mail merge in word may also be used to fill envelopes and labels with data source (such as name and addresses), with a generic main document to produce a mail merge document.

You can also use mail merge to create a single document, such as catalog or membership directory. It is used when the same content of a file with little difference as to be made for many people along with their addresses, for instance interview call letters. In mail merge there are mainly two files having to be created. A data source and a main document. The data source is a document containing data to be inserted during merging, usually it is a table of names, address numbers, paragraph for contacts or description of product. The main document contains the general form of the text that is to appear in every copy. The main document also contains merge codes that specify where data is to be inserted and where in the data source it is to come from. When you run mail merge the merge codes are replaced by data drawn from a data source since different data is inserted into each copy. Multiple customized copies are created.

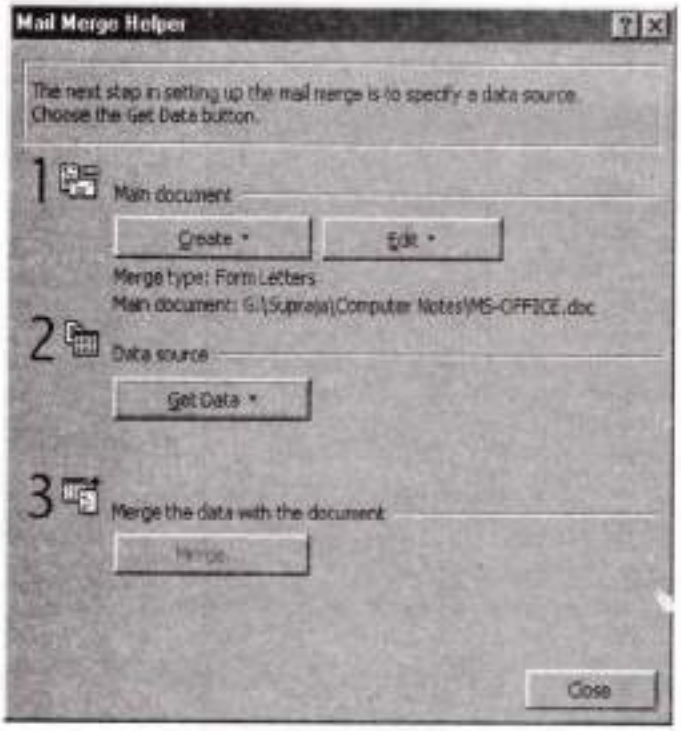
Procedure to create mail merge: -

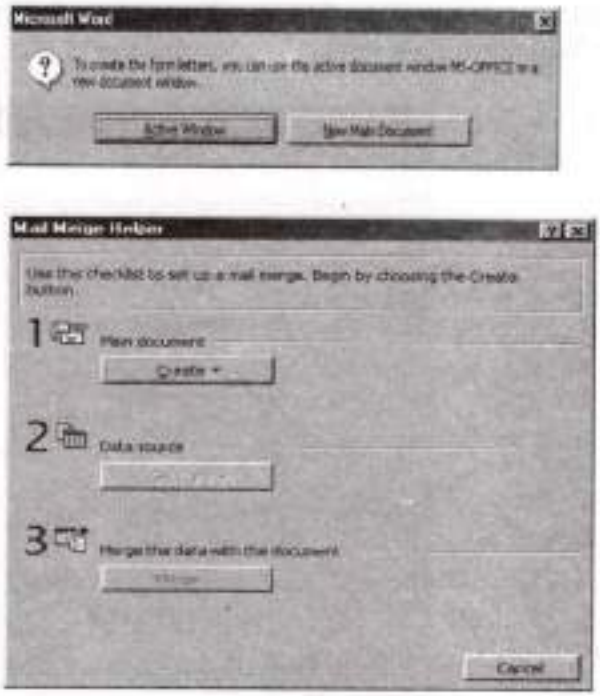
- Create main document
- Create data source
- Insert merge fields
- Run data

Create main document: -

In a mail merge operation this main document contain the text and graphics that remains same for each version of the merged data document. For example the return address and body of a form letter. If your in main document is already created, open it and make it as an active window. Select mail merge from tools menu then mail merge helper dialogue will display. Click the create button in the dialogue box, then it shows the following drop-down list. Select the type of main document that has been created already or going to be created from the drop-down list. Then a dialogue box will be appeared offering you the choice of the active window or a new document. If the active window contains important text that has nothing to do with your mail merge, choose the new main document button then word opens a new document and return you to the mail merge helper dialogue box in forming you at the top of the mail merge

"The next step of setting up the mail merge, is to specify a data source. Choose the get data button". At the same the edit button appears besides the create button to edit the main document later.





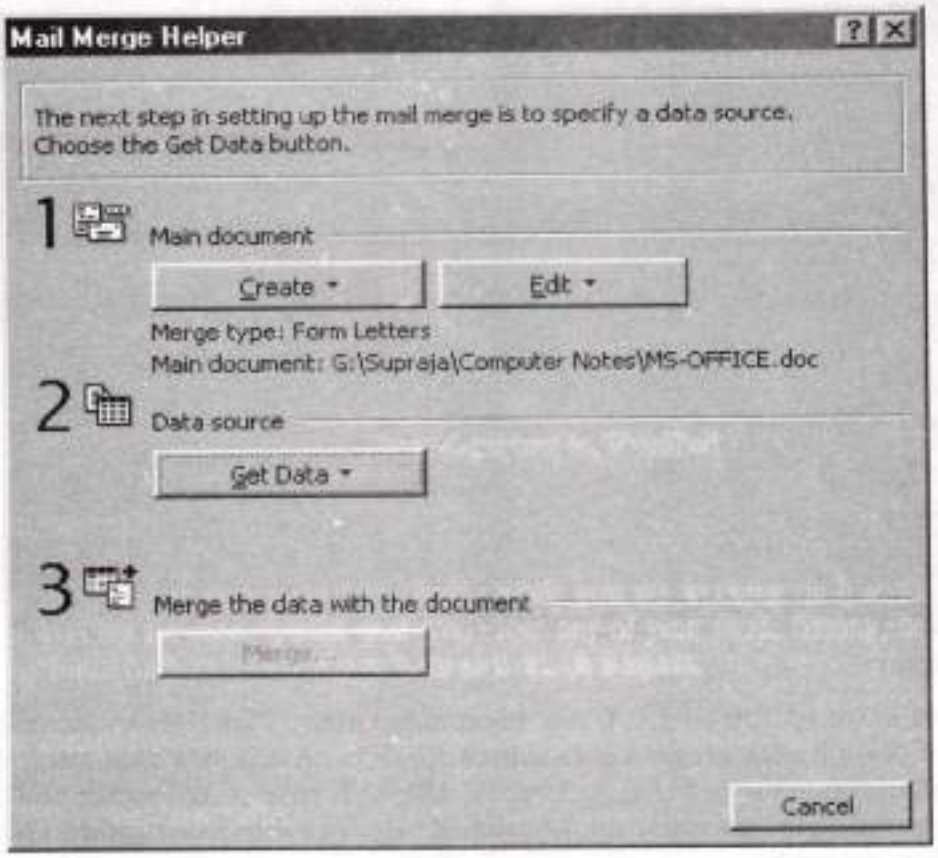
Create data source:

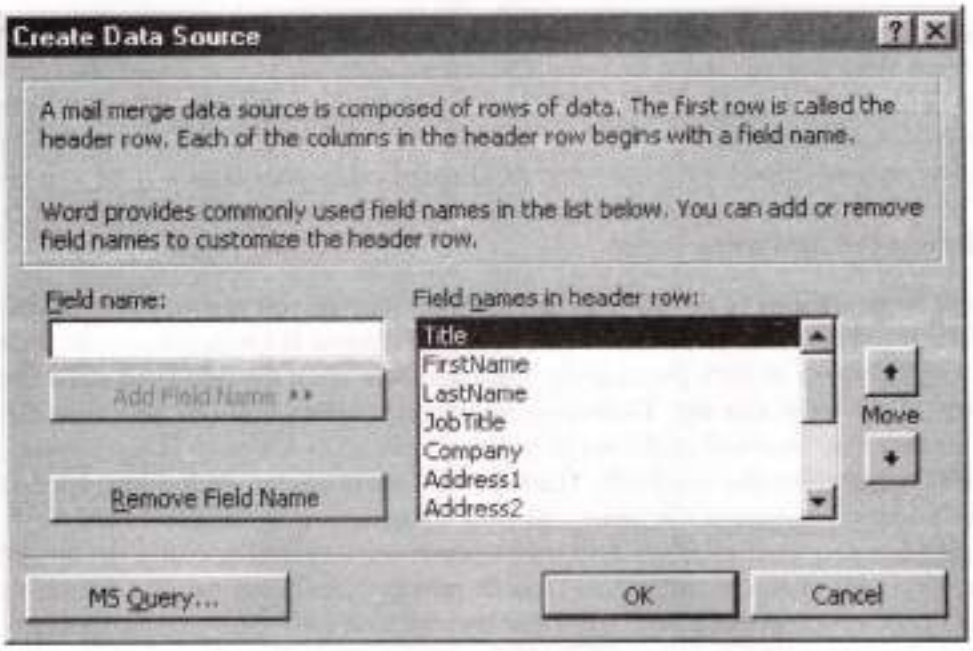
Now it is time to specify data source. Click the **get data button.** Then it shows a drop-down list of options. The drop-down list has **create a data source** option to create a new mail merge data source, **use address book** option to use an existing electronic address book as a data source header option. If the data source does not exist for your mail merge click the create data source, other wise click other choices according to the needs.

To create data source, click the **create data source** from the **get data** drop-down list. Then word displays the create data source dialogue box. The create data source dialogue box has a list of commonly used field names in header row scroll box, where header row is the first row in data source. These field names can be removed from, moved to, and some more field names can also be added to this box according to your needs. So plan what field names that your data source will have and in which order in the scroll box. To remove or modify a field name highlight the field names in the scroll box and click the **remove field name** button.

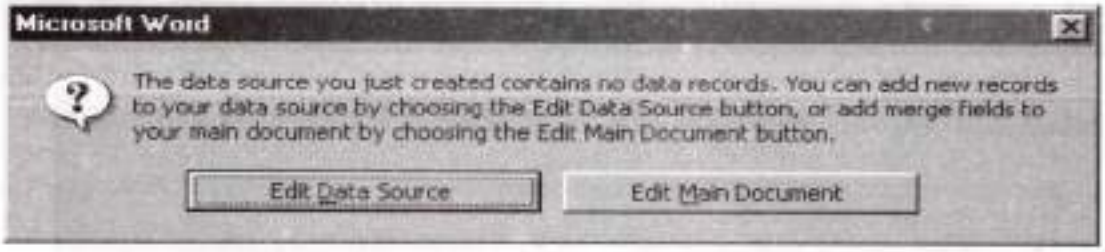
Then the field name appears in the field name list box to enable you to modify its name and add to the list. To add a new or modified field name click in the filed name list box, remove the existing name and type a new field name or modify the existing name and then click the **add field name button,** then that name appears in the scroll box list. To move a field name in the scroll box select the field name to be moved, use the up or down arrow of the move button to move up or down. When adding, moving or removing all field names finished, click ok. Then the save data source dialog box appears. Select a folder to be saved under and enter a file name and click ok to save it to the file name. Now, word will seek an option whether you want to edit data source to enter records in it or edit main document to add data codes or enter a text. You can enter data records now or later using the edit button that appears besides the create data. If you select it now word displays the data form dialogue box appears.

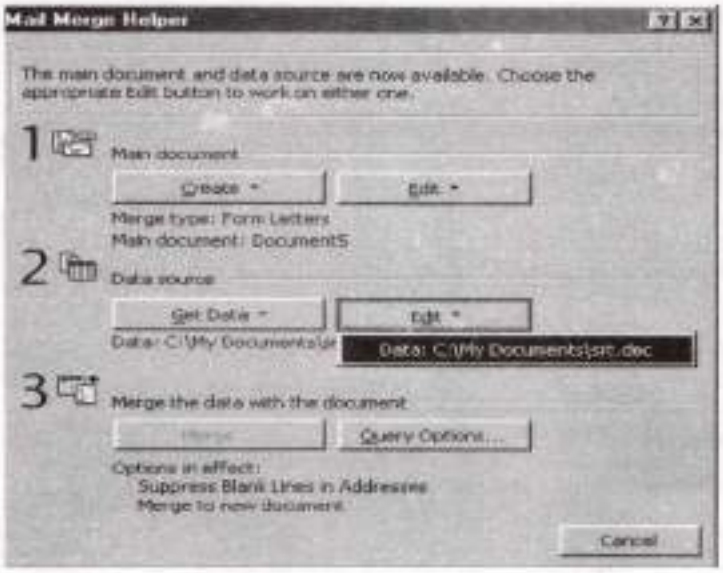
Now enter field by field and click the **add new** button or press the enter key to add next record. Click **OK** to save and close this box. You can use tab key, enter key, arrow keys, or mouse pointer to move to field down. Use shift + Tab, arrow keys or mouse pointer to move up.

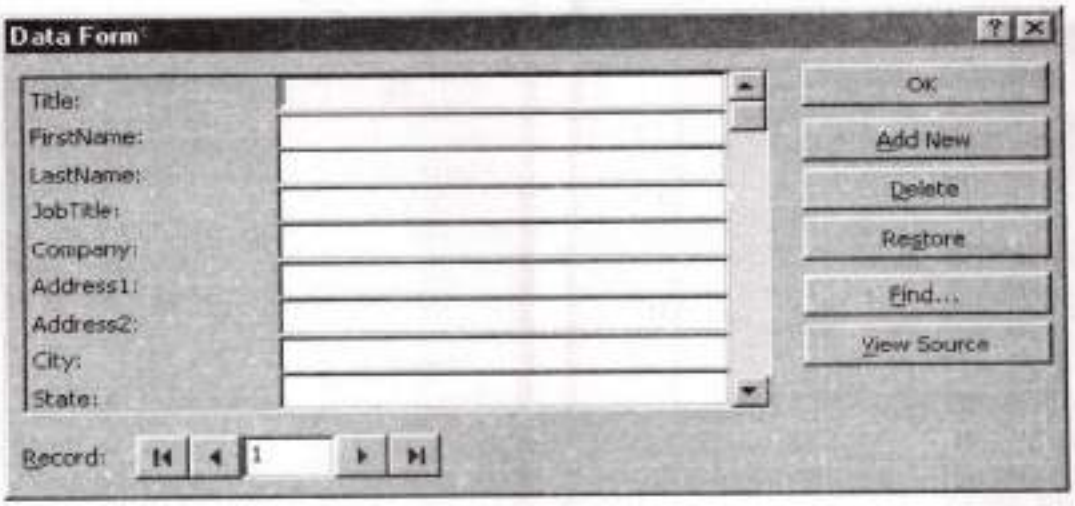




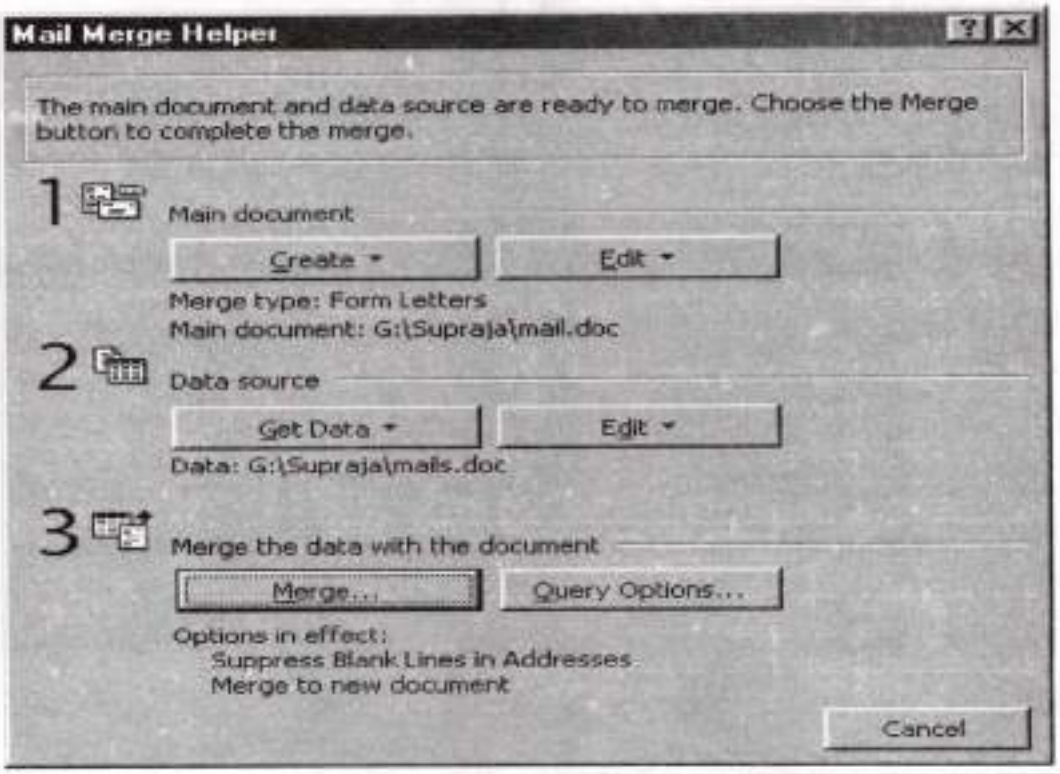
Save As
Save in:
My Documents
Tools
History
My Documents
Desktop
Favorites
Acrobat3
Amat
Anitwa
Dpep
html
Kadapa
List of Trainees
My Music
My Pictures
NOTE PAD
Prasanthi
Tbmpp 2
Tbmpp office 2
Tbmpp office1
Tbmpp1
Telugu
un known
A4 Letters
BIO-DATA
Doc1
HOUSE KEEPING COOKING CATERING
HP
Legal Letters
Letters
List of CHW Students
List of NORAD Trainees
LIST OF STUDENTS
merit certi
MERIT CERTIFICATE
Present Strength
Room Nos
SASI PRIY
sasipriya1
Table
UTILIZATI
WORKSHC
File name:
Save as type:
Word Document
Cancel


Microsoft Word
The data source you just created contains no data records. You can add new records to your data source by choosing the Edit Data Source button, or add merge fields to your main document by choosing the Edit Main Document button.
Edit Data Source
Edit Main Document


Mail Merge Helper
The main document and data source are now available. Choose the appropriate Edit button to work on either one.
1
Main document
Create
Edit
Merge type: Form Letters
Main document: Document5
2
Data source
Get Data
Edit
Data: C:\My Documents\jsr.doc
3
Merge the data with the document
Merge
Query Options...
Options in effect:
Suppress Blank Lines in Addresses
Merge to new document
Cancel


Data Form
Title:
FirstName:
LastName:
JobTitle:
Company:
Address1:
Address2:
City:
State:
OK
Add New
Delete
Restore
Find...
View Source
Record:
1

Mail Merge
Insert Merge Field
Insert Word Field
1
Merge...


Mail Merge Helper
The main document and data source are ready to merge. Choose the Merge button to complete the merge.
1
Main document
Create
Edit
Merge type: Form Letters
Main document: G:\Supraja\mail.doc
2
Data source
Get Data
Edit
Data: G:\Supraja\mails.doc
3
Merge the data with the document
Merge...
Query Options...
Options in effect:
Suppress Blank Lines in Addresses
Merge to new document
Cancel

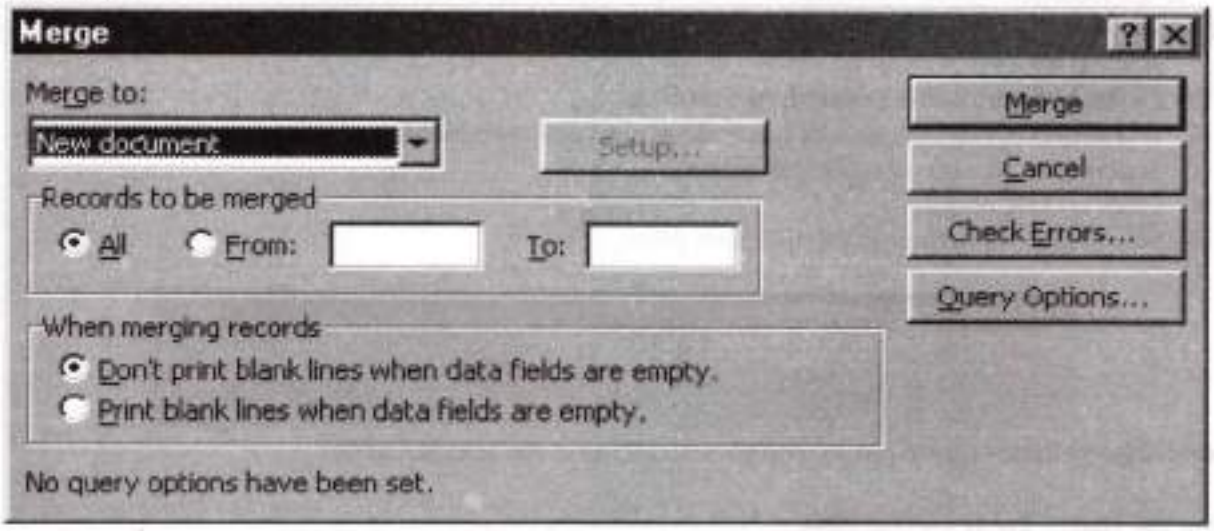
Open data source: - If we want to open an existing data source select open data source from **get data** drop down list. It displays the open data source dialogue box just like the file open dialogue box. Selects the document you want to use and click OK. If open data source is perfect, MS-Word adds it to the current mail merge dialogue box, other wise word prompts you to specify field delimiter. If word does not recognize your data source still use cancel to withdraw the selected data source.

- **Use address book: -** select the use address book from the **get data** drop down list to use an existing electronic address book as a data source. This address book will get attached with the present mail merger
- **Header option**: - select the header options from the **get data** to create header record to be used with a data source.
- **Insert Merge Fields: -** Merge fields can be inserted into the main document at the time of creation or later. Make sure what ever merge fields used in the main document that must be available in data source. Click the edit button beside the create button then you enter into the main document window along with the mail merge tool bar. The mail merge tool bar is displayed.

  Insert the merge fields wherever necessary using the insert merge field button on the tool bar. To insert a merge field click at where the field to be insert in the main document and select the merge field name form the drop down list of the insert merge field button.

Merge data :-(Run data)

Before merging the records with the main document we can sort the record in an order or restrict merging to certain records only. To sort or filler the records, select the query options from the mail merger helper dialog box and select the required tabs and perform required operation. Now you are ready to merge the data source with the main document. Select the merger from the mail merger helper dialog box or click the merger button on the tool bar. then we will get the following merger dialog box.



From the dialog box select whether you want to merge to a new document, printer, electronic mail or electronic fan from the merger to drop down list and select other options in the dialog box and then click the merge button to run mail merge. Follow other instructions you will get in merger documents.

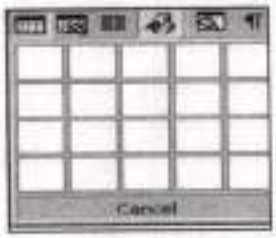
2.1.12 Table Menu

Working with Tables: -

A table is simply information arranged in rows & columns. Word creates tables in four ways:

- Insert table button
- Insert table dialog box (**Table→Insert→Table** menu selection)
- Table &borders button
- **Table→convert text to table** menu selection

Using the Insert table button: -
To use the insert table buttons, drag the desired number of rows & columns, & release the button. A blank table is inserted at the cursor position.



Draw table: -Inserts a table with the specified rows and columns, in the current document.

Using the Tables and Borders tool bar: -

If the table and borders tool bar is available in the word environment, a table is created according to the following procedure.

- Click the Insert Table Button in the tool bar.
- A dialog box will appear which has the user to enter the number of rows and columns.
- Specify the number of rows and columns.
- Click on **OK** button.
- Now a table is created in the Insertion point.

Insert: -Inserts tables (inserts rows, columns and cells in the selected table).

Using the Insert Table Dialog box: -

This dialog box lets you tell word how many columns and rows you want. You can set the width of each column by entering the desired value. You can also use the default (auto), which divides the table in to columns of equal width between the established page margins.

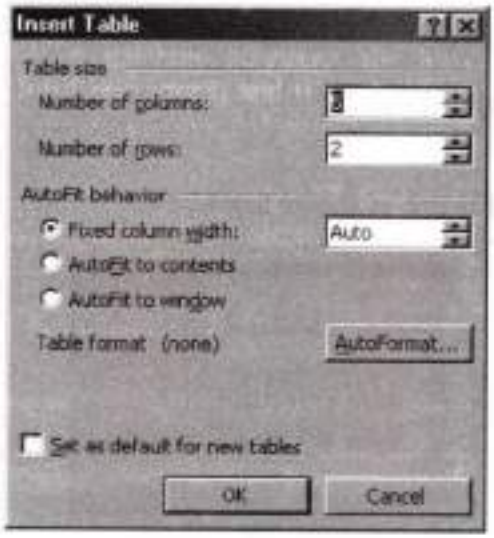


Table Deletion:
In a table individual or multiple cells rows, or columns or entire table can be deleted. You can also clear the constants of same with out deleting the cells themselves.

Deleting a Table: - It deletes entire table.
Procedure: -

- Click in the table to be deleted.
- Click **Table** menu.
- Click **Delete.**
- Click **Table.**

Deleting a Row in Table: - It deletes entire row in a table.

Procedure: -

- Click in the table to be deleted.
- Click **Table** menu.
- Click **Delete.**
- Click **Row.**

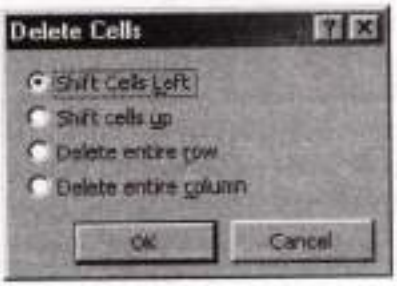
Deleting a Column in Table: - It deletes entire column in a table.

Procedure: -
- Click in the table to be deleted.
- Click **Table** menu.
- Click **Delete.**
- Click **Column.**

Deleting Cells in a Table: - It deletes a cell in the table.

Procedure: -

- Select the cell to be deleted.
- Click **Table** menu.
- Click **Delete.**
- Click **Cells**. It opens a dialog box as shown below.



1. Select **Shift Cells Left** to shifts a cell to the left.
2. Select **Shift Cells Down** to shift a cell up.
3. Select **Delete entire Row** to delete a row.
4. Select **Delete entire Column** to delete a column.

MS- EXCEL

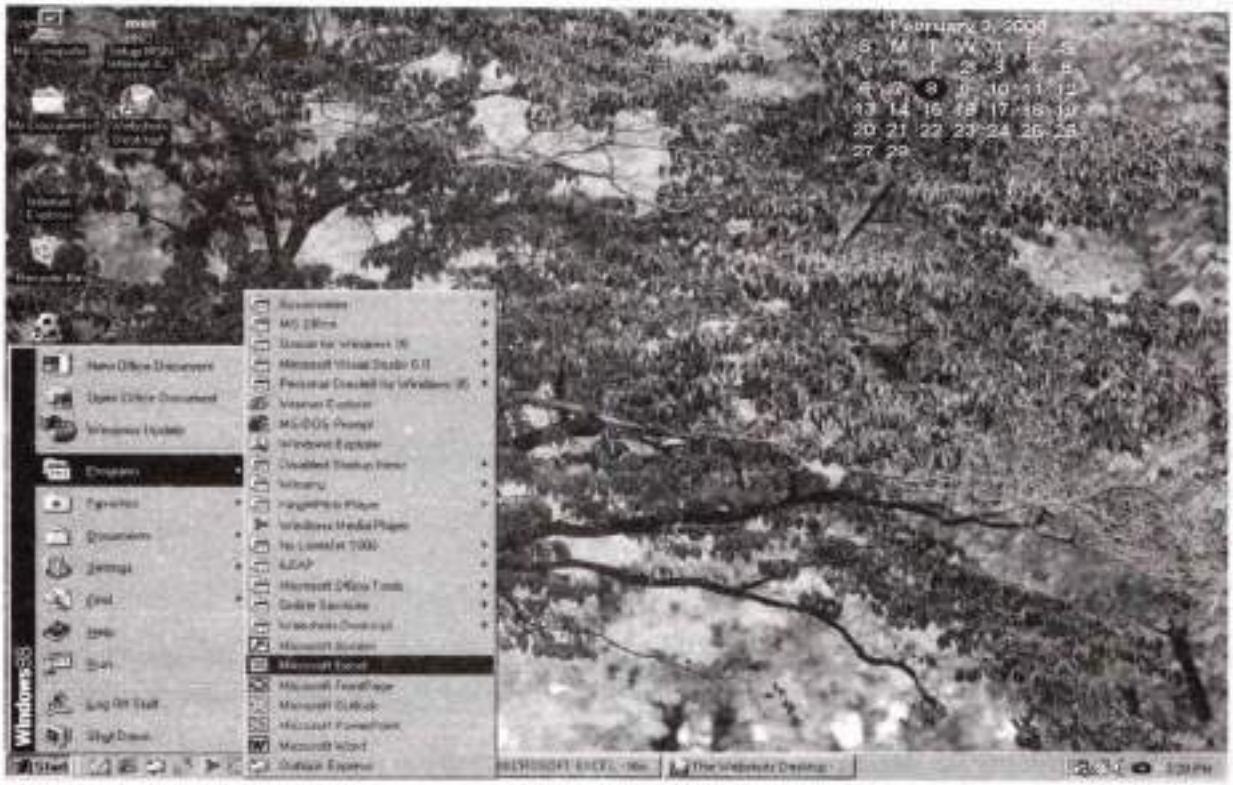
2.2.1 Excel Basics

Excel is a spreadsheet program that is used primarily to work with numeric data. It enables you to prepare budgets and price costs, compare costs, format figures, create graphs and charts, and organize and analyze data. It replaces the jobs of accountant's and managers in smooth and fast manner in addition to having more features. In computers spreadsheet is an electronic paper ledger where the data is stored in the form of electronic impulses, so that data replacement, deletion and insertion take place easily. There are many spreadsheet programs naming a few **visi calc, Lotus 1,2,3., super scale and MS-excel.** Ms-excel is a very popular spreadsheet application from the trademarks of Microsoft's.

2.2 Starting Microsoft Excel application: -There are basically three ways to open excel application.

From Start button: -

- Click **Start** on the **task bar**.
- Select **Programs**.
- Click **MS-EXCEL** from Programs menu.



From Shortcut Bar

Once office shortcut bar is open any office application can be opened quickly from the shortcut bar.

Click on MS-Excel ion on Shortcut Bar

From Desktop: -

Double click the Ms-Excel icon

on Desktop.

The another method is

- Click **Start** on the **task bar**.
- Select **Run**. It shows a dialog box as given below.
- Type **Excel** and then click **OK.**

2.2.2 Excel Components:

Excel window contains a menu bar and several toolbars. Most of the buttons on these toolbars act as short cuts to the commands in the menu. The standard excel window has the following components.

Some of the components are already given in **Ms-Word.** The remaining is given below.

Worksheet area: - Worksheet is space in excel where data or text can be entered or typed. It is also called as spared sheet. It consists of cells arranged in rows and columns. The entire worksheet and all its elements including cells gridlines, rows and columns headings, scrollbars and sheet tabs are called worksheet area.

Tab scrolling buttons: - The arrow buttons to the left of the worksheet tab can be used to scroll between tabs if the workbook has more tabs then are currently displayed. Click an arrow for the direction you want to scroll, click its tab. To scroll several tabs at a time press shift while you click one of the middle tabs scrolling buttons to display a menu of sheets in the workbook. Click a tab-scrolling button with the right mouse button.

Worksheet tab: - A tab near the bottom of a workbook window that displays the name of a sheet. Click the sheet tab to make active. To display a shortcut menu, click a tab with the right mouse button. To scroll through the sheet tabs, use the tab scrolling buttons to the left of the tabs.

Name box: - The box at the left end of the formula bar that identifies the selected cell chart item or drawing object. Type the name in the name box and then press Enter key to quickly name a selected cell or range. To move to and select a previously named cell, click its name in the name box.

Formula bar: - A bar near the top of the window that displays the constant values of formula used in the active cell. To enter or edit values or formula select a cell, type the data in the formula bar and then press enter. You can also double click a cell to edit data directly in the cell.

Column heading: - The lettered gray area at the top of each column. Click the column heading to select an entire column. If you click the column heading with the right mouse button a shortcut menu appears. To increase or decrease the width of a column drags the line to the right of the column heading.

Row heading: - The numbered gray areas to the left of each row. Click the row headings to select on entire row. If you click the row headings with the right mouse buttons a shortcut menu appears. To increase or decrease the height of a row, drag the line below the row heading.

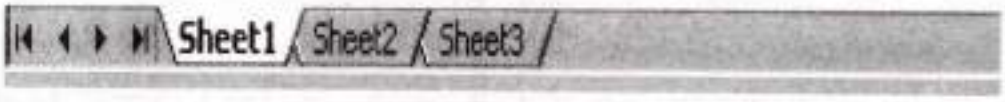
Select all buttons: -The gray rectangle area in the upper left corner of a worksheet where the row and column heading meet. Click the button to select all cells on a worksheet.

Split box: - The small box at the top of the vertical scroll bar and at the right end of the horizontal scroll bar. To view two parts of a worksheet simultaneously, drag the split box in the direction you want the split to appear. To split the window along row or column grid lines, drag the split box on to the worksheet. To remove a split, double click the split.

Cell: - The cell is a basic unit on the worksheet. It is at the intersection of each column and row.

Workbook: -A workbook is the file in which you work and store your data; each workbook can contain many worksheets so that you can organize various kinds of related information in a single file. You can enter and edit data or several worksheets simultaneously and perform calculations based on data from multiple worksheets.

Worksheet: -A worksheet is an electronic ledger having a set of cells arranged in rows and columns. In other words it is a primary document that is used in Microsoft excel to store and work with data. It is also called some times spreadsheet. Worksheet is always stored in a workbook.



Worksheet Window: -

Worksheet (some times called spreadsheet) is an application program into which you can enter labels, numbers or formulae. The excel worksheet consists of cells arranged in rows and columns. The cell is a basic working unit. Row cells are placed horizontally, left to right across the screen. Column cells are placed vertically, top to bottom. Rows are labeled consecutively with numbers 1 to 65536.

Columns are labeled with letters consecutively. The first 26 columns are labeled A to Z, the next 26 columns are labeled AA to AZ, and the next 26 columns are labeled BA to BZ, and sq on up to 256 columns. A cell is the basic working unit on the worksheet referred by its address usually its column label and row label. For example cell C23 is the address of the cell at the inter section of column C and row 26. You have to enter data in cells; there are 16777216 cells in each worksheet. The worksheet can solve almost kind of numeric problems. Wordbook is a file opened in the excel window. Ms excel enables user to open a number of workbooks at the same time inside the excel window. Each time a workbook is opened, a copy of excel is opened. Because the workbook has its own window, you can minimize it on the task bar or in the excel window, maximize to fill the whole of the area available or leave it floating. Dragging the title bar can move around floating windows.

2.2.3 Entering data: -

Click a cell in which you want to enter data and start typing. While entering data you can use backspace key to delete characters. After typing in the cell, press arrow keys to fix the data in the cell

and cursor moves to any one of the adjacent cells. If you click within that cell again to select it, any thing you type will replace everything already there. Press tab to move to the next cell in the row or press Enter to move to the next cell in the column. Arrow keys are used to move to adjacent cells, but these do not affect if the cell is set for editing.

Workbook: -In Microsoft Excel, a workbook is the file in which you work and store your work.

- Click file on the menu bar.
- Select new then the new dialog box appears.
- Click the general form tab, and then double click the workbook icon. To create a workbook based on a template. Click the spreadsheet solutions tab or the tab listing your custom templates. And then double click the template for the type of workbook you want to create.

Alternatives: -
Menu: File, New
Toolbar: Standard toolbar, New
Keyboard: Ctrl+N

2.2.4 Data Types

Excel recognizes five different types of data numbers, dates, times, text and formulas.

Numbers: Numbers are values that are used in calculations in Microsoft Excel, a number can use
0123456789 +. ( ) , / $ %
Excel ignores leading plus signs (+) and treats a single period as a decimal. All Other combination of numbers and nonnumeric characters are treated as text.

Dates: -Microsoft excel stores and processes known as serial values that represent 7the number of days, goes since 1/1/1900 serial numbers of the data 1/1/9999 is 2958465 excel can perform calculations on dates based on its serial numbers.

The following table shows feasible date formats.

Date Format	Example
MM/DD/YY	5/7/95 or 05/07/95
MMM-YY	Sep 97
DD-MM-YY	06/ Sep 98
DD-MMM	09 sep

Excel uses slashes while displaying dates but you can use hyphens when entering dates. For example both 11/28/64 and 11/28/64 will be stored correctly.

Time: -

Time format	Example
HH:MM:	10:18
HH:MM:SS	21:15:23
HH:MM: AM/PM	12:15 PM
Date and time format	**Example**
MM/DD/YY HH: MM	10/8/94 10:15 AM/PM option
HH:MM MM DD /YY	22:15 10-8-94

Formulae: -These are mathematical formulae instructing excel to perform calculations on data in cells. The structure or order of the elements in a formula determines the final result of the calculation. Formulas in Microsoft Excel follow on equal sign= followed by the elements to be calculated (the operands). Which are separated by calculation operators. Each operand can be a value that does not change (a constant value), a cell or range reference, a label name, or a worksheet function. For example to add the data in the cells A1, A2 and A3 and displays the result in cell A4 you would enter the formula=A1+A2+A3 in cell A4.

Text: -Excel takes into account any data that it does not recognize as a number date, time or formula to as a text. In other words the data containing letters, addresses, A.M or P.M and so on will be treated as text.

Editing:

Editing in Excel is same as that in word. Unlike things are discussed below. Formatting toolbar standard toolbar their buttons of Excel window are same as that of word.

Selecting: -When a particular text or part of the workbook is to be copied or deleted formula in a row or column is to be applied or any other operation has to be done which then the first thing that always excel has to be instructed is to select that particular part this is called selecting text.

Cells: - A cell is the basic working unit of a spreadsheet. You can select a character, a sequence of characters or complete cells (content the cell).

Character or a sequence of characters: - If editing in cell is turned on (Tools / options.... /edit tab tick of edit directly in cell) double click the cell or click the cell & press F2 and then select the text in the cell dragging the mouse pointer over the text. If editing in a cell turned off, select the cell, & then select the text in the formula bar.

2.2.5 Working with Cells: - To select complete content of cell just click on it.

A range of cells: - Range means two or more cells on a worksheet of the workbook. The cells in a range can be adjacent or nonadjacent. Click the first cell of the range and then drag to the last cell more or fewer cells than the active selection. After the present selection hold down SHIFT& click the last cell you want to include in the new selection. The rectangular range between the active cell & the cell you click becomes the new selection.

A large range of cells: - Click first cell in the range and then hold down SHIFT &click the last cell in the range. You can scroll to make the last cell visible.

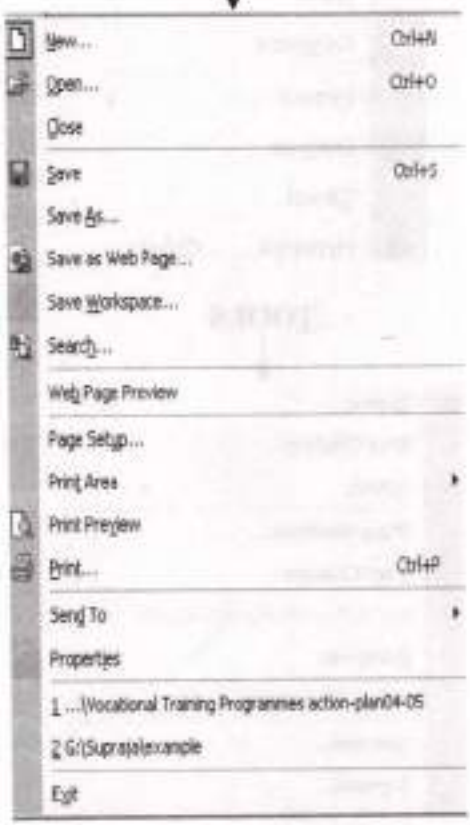
Rows: - Row is a sequence of all cells in a line. To select entire row click the row heading. To select adjacent rows click the starting row heading in a selection, hold down the primary mouse button, & drag over up or down row heading.

Columns: - Column is a sequence of all cells in a vertical line to select an entire column click the column heading. To select adjacent columns click columns heading in a selection hold down the primary mouse button and drag over left or right column heading.

Worksheet: - To select all cells in an active worksheet click the select all button.

To select	Do this
A single worksheet	Click the worksheet tab
Two or more adjacent worksheets	Click the tab for the first worksheet & then hold down shift and click the tab for the last worksheet.
All worksheets in a workbook	A Right click a worksheet tab & then click select all sheets the short cut menu. Right click for the first worksheet and then hold down ctrl & click the tabs for the other worksheet.

File

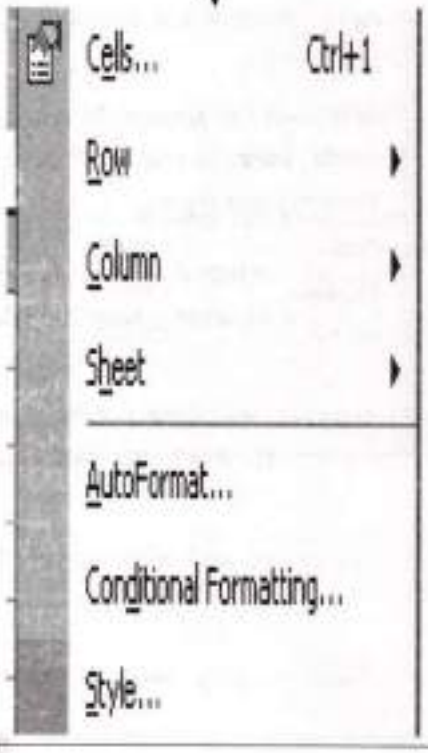


Edit

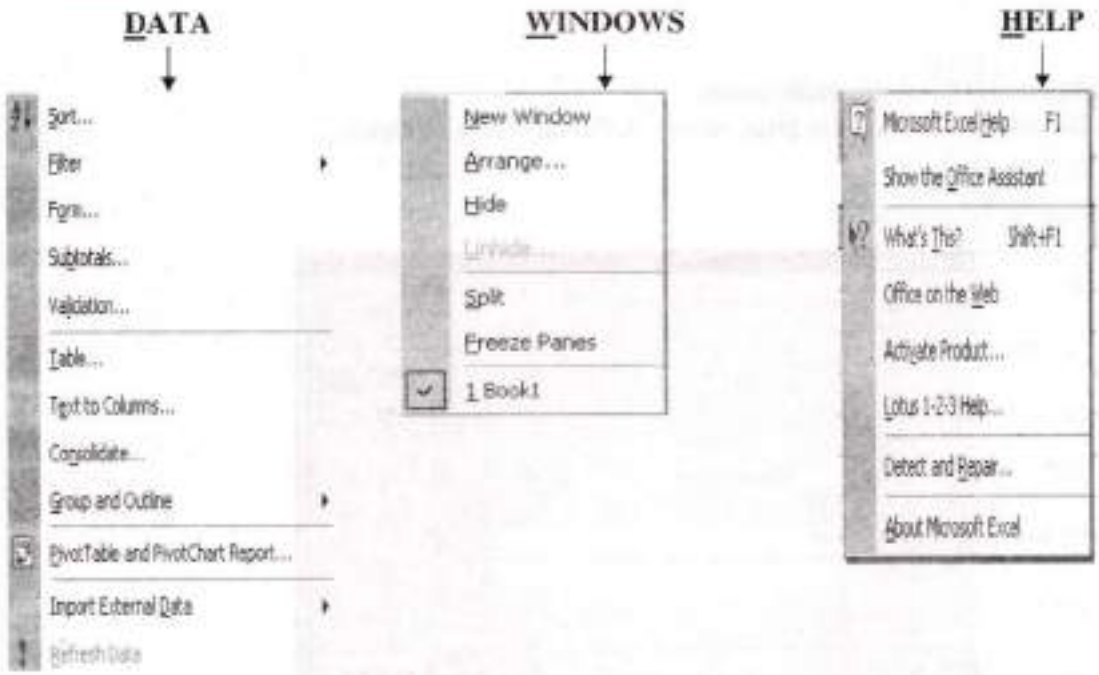
VIEW

INSERT

FORMAT



TOOLS



2.2.6 File Menu

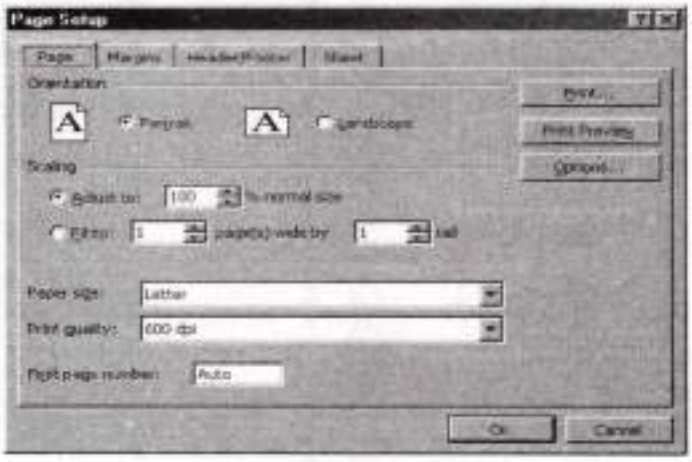
- **New**: -It creates a new blank file based on default values contained in a file called normal.xls.
- **Open: -** It opens or finds an existing file.
- **Close: -** It closes the active worksheet without exiting the application. If the file contains any unsaved changes, you will be prompted to save the file before closing.
- **Save: -** saves the active file with its current file name, location, and file format. In case a new file is saved for the first time, the user has to specify the file name, location and file format.
- **Save as: -** saves the active file with a different file name, location or file format.
- **Save as web page: -** saves the file in HTML format (a web page), so that it can be viewed in a web browser, and sets other options such as the web page title and location where the file will be saved.
- **Save workspace: -** saves a list of the open workbooks, their sizes and their positions on the screen to a workspace file so that the screen will look the same the next time you open the workspace file
- **Page setup: -** sets margins, paper source, paper size, page orientation, and other layout options for the active file.

Excel provides page setup option to format the page. Formatting the page includes setting up margins for the page, setting paper size and header & footers etc.

Procedure

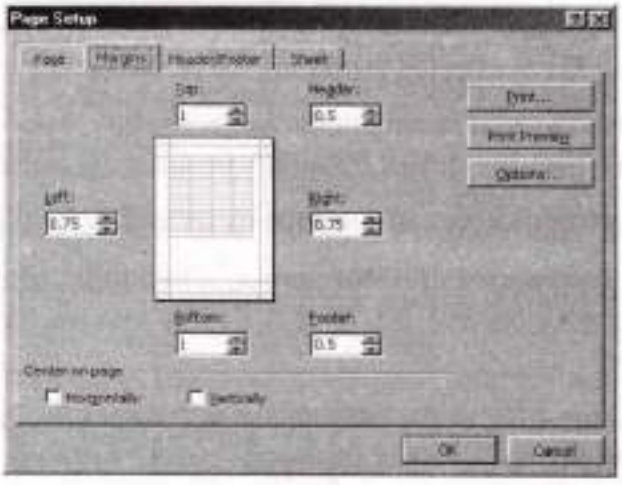
- Select **File** option from the **main menu**.
- In the **File sub menu**, click on **page setup.** A dialog box will appear.

Page option: -



The page option allows setting the paper size, orientation of the data either (portrait or landscape), scaling of the area etc., and one can also view the page how it appears when printed before printing by clicking **print preview** tab.

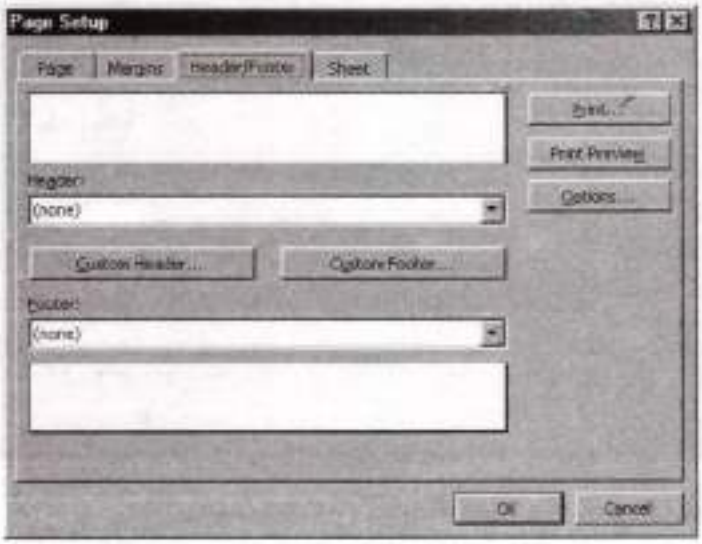
Margins option: -



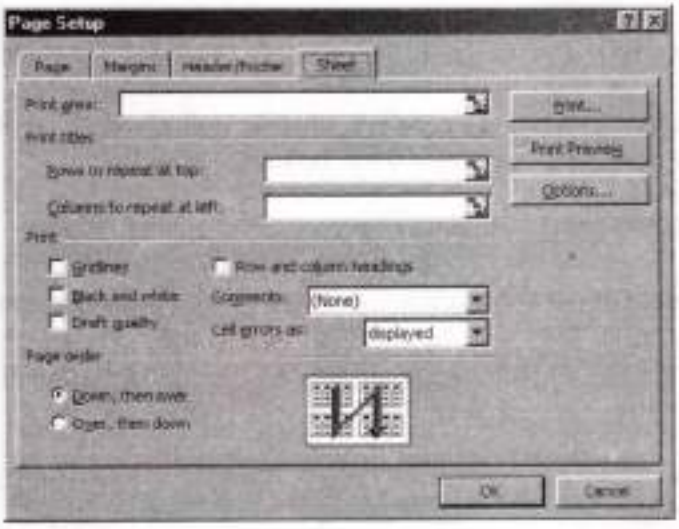
Click on margins tab to set margins for the page. The top, bottom, left and right margins of the page can be set. These are the distances in inches from the edge of the page. One can also set the distance of header & footer from the edge of the paper. The screen also allows seeing the preview of the data when it will be printed.

Header & footer option: -

This tab gives the option to set the header (which will be displayed on top of every page) and the footer (which will be displayed on bottom of the every page). The Header may include the name of the organization or name of the topic or date or any other thing we wish to write. The footer may include the page number or a date or some thing one wish as to write to add more data as header & footer. Click on custom header or custom footer.

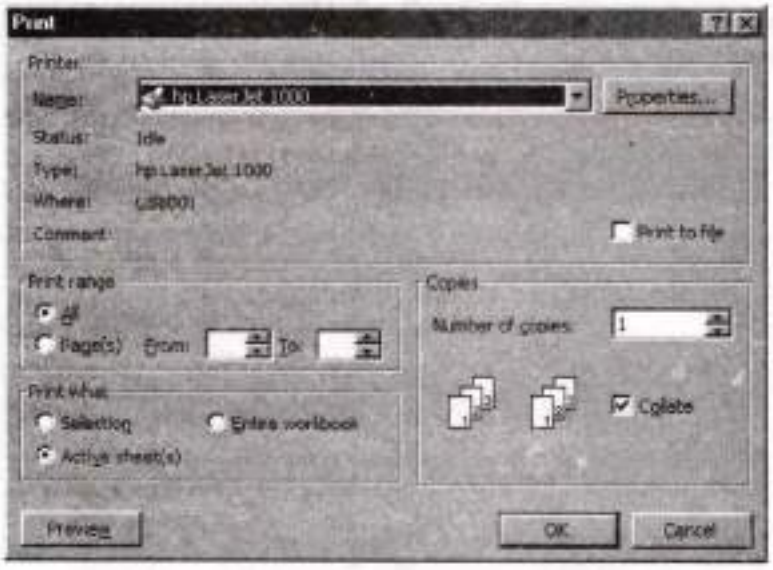


Sheet option: - The option allows selecting area to be printed set the row or columns titles or selecting the page order in printing from the multiple worksheets etc., one can also add gridlines or note using this option.



- **Print area** defines the selected range as the print area, which is only portion of the worksheet that will be printed.

- **Print preview** shows a preview of how exactly a file will look like when you print it.
- **Print:** - It prints the active file or selected items to the selected printer or fax.



- **Send to** sends the document to a mail recipient as an email.

2.2.7 Edit menu

- **Undo last command(s)** reverses the last command i.e. undoes the effect of the last command you executed.
- **Repeat last command(s)** reverses the undo command i.e. restores the last command.
- **Cut** removes the selection from the active worksheet and places it on the clipboard-a special place in computer's memory from where it can be retrieved again.
- **Copy** copies the selection to the clipboard.
- **Paste** insert the content of the clipboard at the insertion point, and replaces any current selection (block).
- **Paste special** pastes, links, or embeds the clipboard content in the current file in the format you specify.
- **Paste as hyperlink** Insert the content of the clipboard as a hyperlink at the insertion point, replacing any selection.
- **Fill:** - It fills specified range with a series of numbers, dates or other items. Fill is used to fill the same value in multiple cells or fills in a series of values, depending on what command you choose.

Procedure to Fill the Same Text in Several Cells: -

1. Type the text into the first cell where you want it. For example, type your name in cell B2.
2. Select that cell and the other cells where you want that text to appear. For example, select B2: B8.
3. Select the **EDIT, FILL** and from the submenu that appears, select the direction in which the cells to be copied into are from the original. For example, if the original is in the cell B2 and you want to fill cells B3: B8, select Down.

You can use the preceding method to copy Down, Up, Left or Right. Down and right have shortcut keys that you can use instead of step 3: CTRL+D and CTRL+R respectively.

To Fill the Series of Text in Several Cells: -

In many cases, we may be entering a series of sequential entries, such as incrementing numbers (1, 2, 3.....) or the days of the week, months of the year, etc. Instead of typing each value, ourself we can start the series and have Excel complete it for us by using **EDIT→FILL→SERIES.**

Procedure to Fill the Series of Text in Several Cells:

- Type the starting number in a cell.
- Choose **EDIT→FILL→SERIES.**
- The series dialog box as shown in below.

- Specify Series In, whether it is Row or Column.
- Choose Step value and Stop value.
- Click **OK,** the specified series is filled in Row/Column wise.

Clear: - It deletes the selected object or text without putting it on the clipboard. Content of the cell, row, column, or worksheet can be deleted using the DELETE key or **clear,** option in **Edit** menu. DELETE key removes the cell contents but does not remove any comments or cell formats. But **Clear** list in the **Edit** menu has **All, Contents, Formats,** and **Comments** options. You can select the option you want.

Procedure to Clear: -

- Select the cells, rows, columns, or worksheets in which the contents to be deleted.

- contents or choose other options in the **Clear** list. Clear All deletes all including comments, contents, and formats.
- To remove all comments in the worksheet, click **Go To** on the **Edit** menu, click **special** and then click **Comments.** Then point to clear on the **Edit** menu, and click **Comments.**

- **Delete: -** It deletes the selected cells or the cell that contains the insertion point. If you select an entire row or column, the command changes to delete rows and delete columns, respectively.

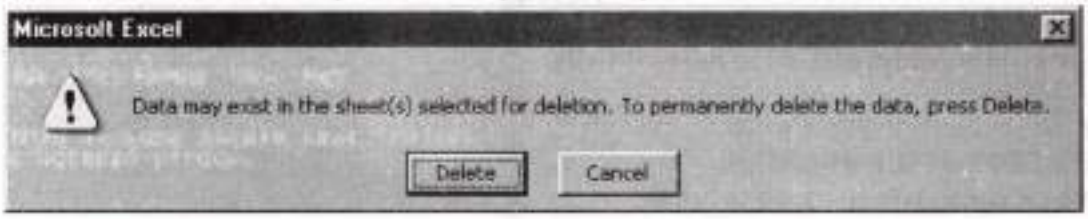
- **Delete Sheet: -**It deletes the selected sheets from the workbook. You cannot undo this command.

Procedure: -

- Select the sheet you want to delete.
- Select **Delete sheet** option from the **Edit** menu.

(Or)

- Right click on the worksheet tab default tab (sheet1, sheet2) select the delete option from that context menu. Then it asks you to delete permanently then click Delete button.



- **Move or Copy Sheet: -** It moves or copies the selected sheet to another workbook or to a different location with in the same workbook.

In Microsoft office coping and moving are very easy. Coping is an editing that inserts a copy of text at destination place where source place retains the text. Moving is an editing that removes the text from source place and inserts into a destination place. Here source is a place where you receive text for editing and destination is a place where you insert the text.

Cells: -

When a cell is copied or moved by dragging or by clicking Cut or Copy and Paste. Excel copies the entire cell, including formulas and their resulting values, comments, and cell formats. If the selected copy area includes hidden cells, it also copies the hidden cells. If the paste area contains hidden rows or columns, the paste area might need to be unhidden to see all of the copied cells.

- **Characters:**

1. Double click the cell you want to edit.
2. In the cell, select the characters you want to move or copy.
3. To move the characters, click **Cut.** To copy the characters, click **Copy.**
4. If you want to copy or move in to another cell double click the cell to which you want to move or copy the data.
5. In the cell, click where you want to paste the characters.
6. Click **Paste.**
7. Press ENTER key.

- **Cells: -**

1. Select the cells to be moved or copied.
2. Point to the border of the selection.
3.1. Drag the selection to the upper –left cell of the paste area to move the cells.
3.2. To copy the cells hold down CTRL then drags the selection to the paste area and release the mouse button.
3.3. To insert the cells between existing cells, hold down SHIFT (if moving) or SHIFT+CTRL (if copying) as you drag.
3.4. To drag the selection to different worksheets, hold down ALT and drag over a worksheet tab.

To move or copy cells to a different workbook or a long distance, select the cells and click **cut** to move the cells or **copy** to copy the cells. Switch to the other worksheet or workbook, select the upper-left cell of the paste area, and then click **Paste.** This can also be done within a worksheet. This gives you multiple copies of one selection.

- **Copy only visible cells** If there are hidden cells, rows, or columns on your worksheet, you can copy only the visible cells. For example, only the displayed summary data on an outlined worksheet can be copied.

1. Select the cells you want to copy.
2. On the **Edit** menu, click **Go To.**
3. Click **special.**
4. Click **visible cells only,** and then click Ok.
5. Click **copy.**
6. Select the upper-left cell of the paste area.
7. Click **Paste.**

ROW and COLUMN: -

Here the **Fill Handle** comes into picture. It is the small black square in the right down corner of the selection. When you point to the fill handle, the pointer changes to a black cross. To copy contents to adjacent cell or to fill in a series such as dates, drag the fill handle.

1. Select the cells that contain the data to be copied.
2. Drag the handle across the you want to fill, and then release the mouse button. Existing values or formulas in the cells you fill are replaced, and formatting is copied. If the cells need to be filled with series, type the first two numbers, select them and the fill handler across the cells to be filled.

   To quickly fill in the below cell with the content of the above, click the below cell and press CTRL+D. To fill in right cell with contents of the left, click the right cell and press CTRL+R.

Worksheet: -

1. To move or copy worksheets to another existing workbook, open the workbook that worksheets.

2. Switch to the workbook that contains the worksheets to be moved or copied, and then select the worksheets.
3. On the **Edit** menu, click **Move or Copy Sheet** to display the **Move or Copy dialog** box.
4. In the **To book** box, click the workbook to receive the worksheets. Click **New book** to move or copy the selected worksheets to a new workbook.
5. In the **Before sheet** box, click the worksheet before which you want to insert the moved or copied worksheets.
6. To copy the sheets instead of move them, select the **Create a copy** check box.

- **FIND:** -It searches for specified text, formatting, symbols, comments, footnotes or endnotes in the active document.

- **REPLACE** - It searches for and replaces specified text, formatting, footnotes, endnotes or comment mark in the active document.

2.2.8 Creating and Editing Charts: -

Charts: -An excel chart is a graphical representation of data from a worksheet. It is used to analyze numerical data charts make it easy for users to see comparisons, patterns and trends in data. We can create charts in two or three dimensions based on the data in a worksheet. Once we have created a chart, we can print it, hide it check spellings in it, modify it or even we can include it in our other applications. A chart is linked to the worksheet data form where it is created and is updated automatically when we change the worksheet data.

Components of Charts: -

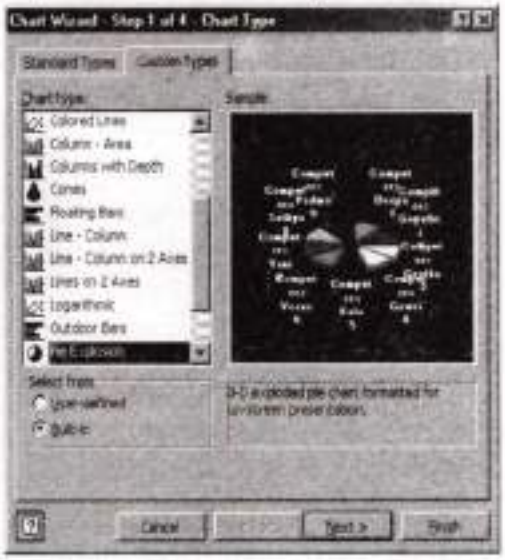
AXES: - It is a reference line representing one of the dimensions of a chart excel can plot up to three axes: x, y &z. The x-axis runs horizontally. y-axis runs vertically and the z-axis runs vertically to x and y axis. Two dimensional charts have x and y axis. Three dimensional charts have x, y and z axes.

Data Series: - It is a collection of related values that are plotted on the charts.

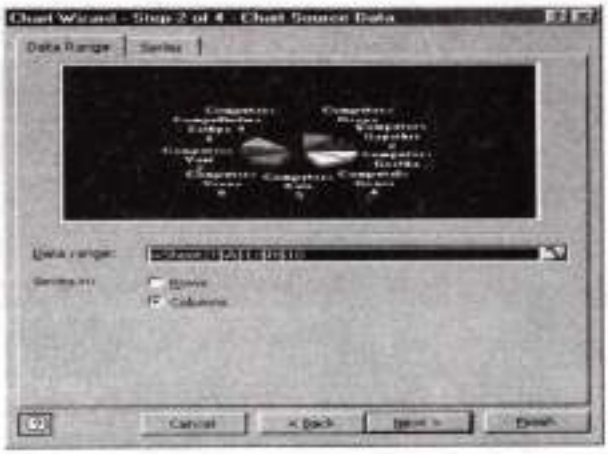
Legends: - Labels and colors are patterns that identify each data series. When charts have more than one data.

Creating a Chart: - We can create either an embedded chart in the current worksheet or a chart on a separat worksheet we can easily create chart using chart wizards.

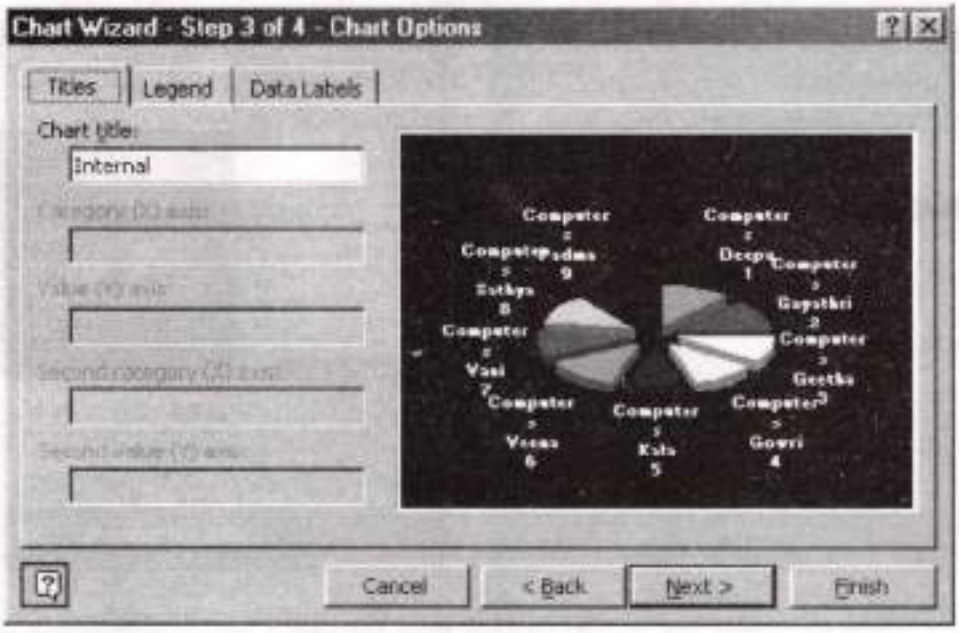
- Select the cells that contain the data that we want to appear in the chart. If we want the column and row label to appear in the chart include the cells that contain them in the selection.
- Click chart wizard or select the chart from insert menu to display the first chart Wizard, the chart type dialog box
- Choose the chart in the chart type list and its sub chart in chart sub type list i.e best suited to our data form standard type few. We can also use custom types tab to select custom type charts. click and hold the mouse on the press and hold to view sample button to view sample chart



- Click the next button to display the second chart wizard, the charts source data dialog box. On the data range tab, excel displays selected data range. If displayed range is incorrect, click and drag through the worksheet to select the current range of data. Then choose whether the data series tab to adjust the data series .Here we can add or remove series using the add and remove buttons. We can also change the x-axis label using the category(x) axis label box.



- Click the next button to display the third chart wizard the chart option dialog box provides us up to six tabs depending on the chart type to select. Select tabs and specify different setting in that tab like title, grids, axis etc.
- Click the next button to display the fourth chart wizard the chart location dialog box click as new sheet on then type a name for the new chart sheet in the new sheet box to place the chart on a new chart (or) click as object.
- Click the finish button to complete the chart creation, a chart inserted as a work sheet object. Drag the embedded chart where user want it to and the worksheet.



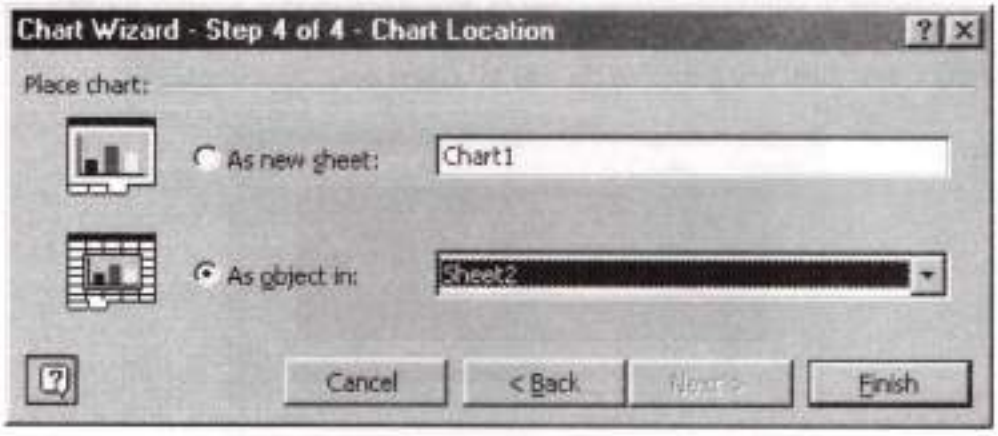


Chart Modification: -

Move: -

To move an embedded chart on a worksheet, click any were in open space of the chart & drag it to the position you want to move. To move a chart from one worksheet to another worksheet right click in it and choose cut, open worksheet on which you want to place the chart, right click and choose paste.

Resize: -

Select the chart by clicking any where on the open space of the chart, then put the mouse pointer over one of its handles to display double handed up arrow and then hold the left mouse button and drag till you get the size you want.

Delete: -Select the chart and press the delete key on the keyboard. You can also do the same from the context menu.

2.2.9 Functions and Formulae: - It displays a list of functions and their formats and allows you to set values for arguments.

In excel functions are predefined or build in formulas that perform calculations using specific values supplied in the form of arguments and returns values for cell. For example Sum(A2: A11) returns the sum of all cells from A2 to A11 in the cell where this formula resides. A function may consist of a name and one or more arguments separated by commas and enclosed in parenthesis. Arguments can be numbers, constants, cell reference range names etc. The argument used in a function must produce value for that argument.

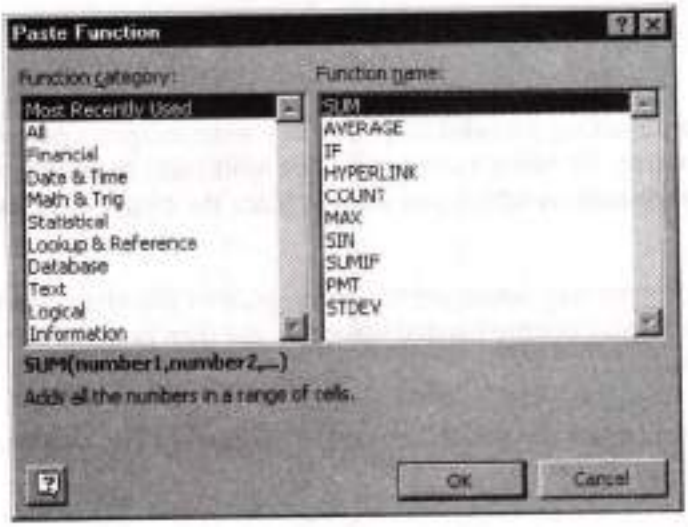
Auto Sum: -There is a button on the standard toolbar called Σ auto sum. It quickly adds a range of cell contents.

1. Click the cell that holds the result of auto sum.
2. Click the auto sum button.
3. Microsoft excel suggests the range of cell to be added. If the suggested range is incorrect, drag through the range the range you want.
4. Press the ENTER key.

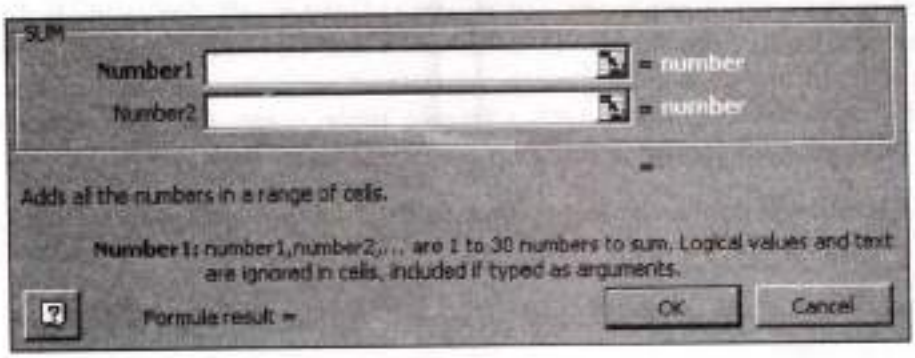
Use of the Function Wizard: -

Function wizard provides an easy way to select the function. The procedure to open the function wizard, selecting the function and pasting in to the work sheet is explained below.

- Click the cell that holds the results of a function.
- Click the paste function button on the standard toolbar to display function dialog box or select function from **Insert** Menu The function dialog box contains two categories i.e; the function category on the left side and the function name on the right side.



- In the function category list box, click a category of function to display its functions in the function name box.



- Select the functions from the function name list and click OK.

Common Functions

Here we will see some frequently used functions and their syntax. Functions are divided into several categories. They are database and list- management functions, date and time functions, DDE (Dynamic Data Exchange) and External functions, Engineering functions, financial functions, information functions, logical functions, lookup and Reference functions, math and trigonometry functions, statically functions, and text functions.

Sum: -This function adds all the numbers in a range of cells .
Syntax

SUM (number1 ,number2,....)
Number1, number2,... are 1to 30 arguments for which you, want the total value or sum. Numbers, logical values, and text representations of numbers that are included directly into the list of arguments are counted. Text values are translated into numbers, and the logical value TRUE or FALSE are translated into the number 1 or 0, Arguments that are error values or text that cannot be translated into

numbers cause errors, SUM(4, 5) results in 9. SUM ("6",5, TRUE) results in 12. If B1 contains "6" and C1 contains TRUE, then: the same formula can be written as SUM(B1, 5, C1). If cells A2:A6 contain 6, 17, 30,41,and 51 then Sum (A2:A6) results in 145 and SUM (A2:A6, 15) gives 160.

Power: -This function returns the result of a number raised to a power.

Syntax

POWER (number, power)

Here number is the base number, It can be any real number. Power is the exponent to which the base number is raised. The "^" operator can be used instead of POWER to indicate to what power the base number is to be raised, such as in 2^4. For example POWER (2,4) results in 16, and POWER (82.83,6.2) equals 7.1202E+11. You can also write these functions in formula type expression as =2^4and=82.83^6.2.

MOD: -This function returns the remainder after number is divided by divisor. The result has the same sign as divisor.

Syntax

MOD (number, divisor)

Number is the number for which you want to find the remainder. Divisor is the number by which you want to divide number. If divisor is 0, MOD returns the #DIV?0! Error value. For example, MOD (5, 2) results in 1, MOD (-5, 2) gives 1, and MOD (5, -2) results in –1. Here instead of values you can use any valid arguments.

SQRT: -This function returns a positive square root of a number.

Syntax

SQRT (number)

Number is the number for which you want the square root. If the number is negative. SQRT returns the #NUM! Error value. For example, SQRT (25) results in 5, SQRT (-25) result in #NUM!, and SQRT (ABS (_25) results in 5.

PRODUCT: -Multiplies all the numbers given as arguments and returns the product.

Syntax

PRODUCT (number1, number2,…)

Number1, nmber2… are 1 to 30 numbers that you want to multiply. If cells A1: D1 contain 5, 15, 10 , and 30: PRODUCT (a1:D1) results in 22500, and PRODUCT (A1:D1.,2) equals 45000.

FACT: -This function returns the factorial of a number. The factorial of a number is equal to 1*2*3*……* number.

Syntax

FACT (number)

Number is the nonnegative number for which you want the factorial. If number is not an integer, it is truncated. FACT (0) and FACT (1) result in 1. For example, FACT (4) results in 24, and FACT (-6) results in #NUM! It is an error message.

DEC2BIN: -This function converts a decimal number into binary.

Syntax: DEC2BIN (number, places)

Here number is the decimal integer to be converted. Places are the number of characters used to represent the binary number. If places are omitted, DEC2BIN uses the minimum number of characters necessary. Places are useful for padding the return value with leading 0s (Zeros). If number is negative, places is ignored and DEC2BIN returns a 10-character (10-bit) binary number in which the most significant bit is the sign bit. The remaining 9 bits are magnitude bits. Negative numbers are

represented using two's-complement notations. For example DEC2BIN (7, 4) results in 0111, and DEC2BIN (-100) equals 1110011100.

Entering and editing using formula: -

A formula is a mathematical expression that performs mathematical and logical operations on worksheet data. The formula is formed with cell references, constants and either arithmetic logic operator. It always begins with equal sign. The equal sign tells excel that the succeeding characters constitute a formula the following example illustrates various items related to the formula.

Numeric Constant
Cell Reference
Work sheet function
Range reference

Ex: - = (A5+58) / sum (B3: B13)

Edit Formula
Division operator
Addition operator

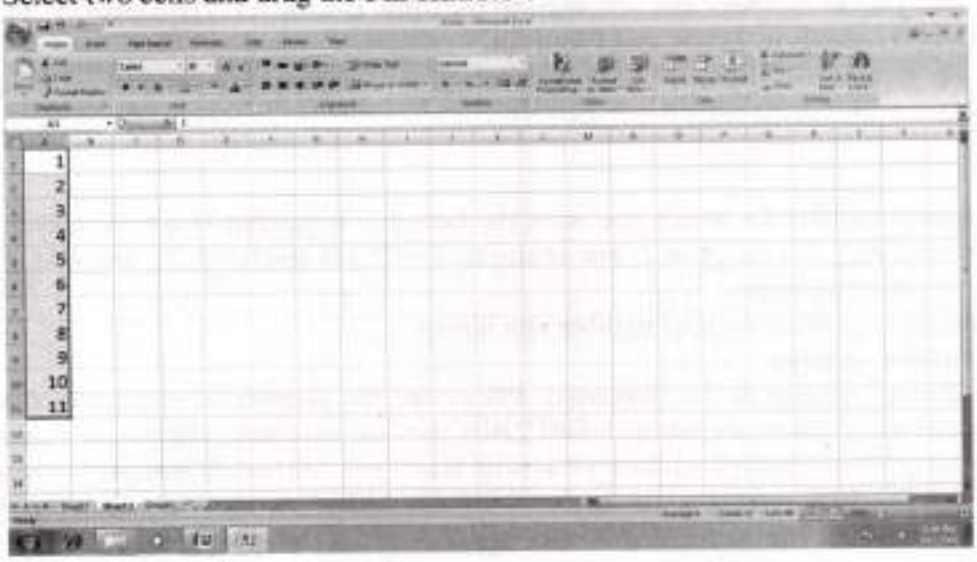
Formula can be placed in the cell that holds the results or select the cell that holds the results and place the formula in the formula bar. The formula bar is also used to edit values or formulas in cells. It is located below tool bars on the excel window. When a cell is selected the formula bar displays the constant value or formula stored in that active cell. To display or hide the formula bar, click formula bar on the view menu.

AUTO FILL

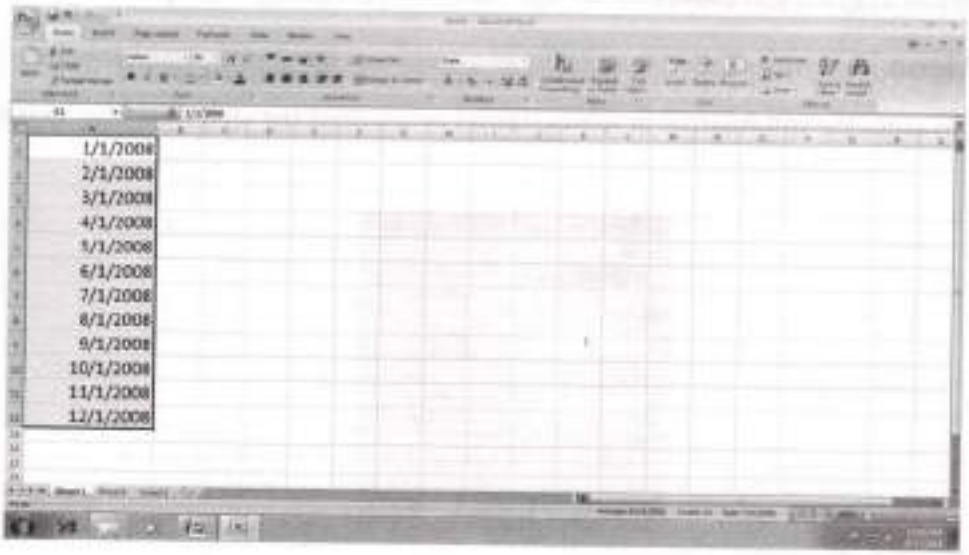
There is an easy method to fill the data in columns and rows. The data may be *Numeric or dates and text.*

To fill SlNo by using auto fill.

- Type Slno for 2 cells i.e 1,2 in the cells A1 and A2 respectively.
- Select two cells and drag the **Fill Handle +**



- Type date in the cell
- Select the cell and drag the Fill Handle

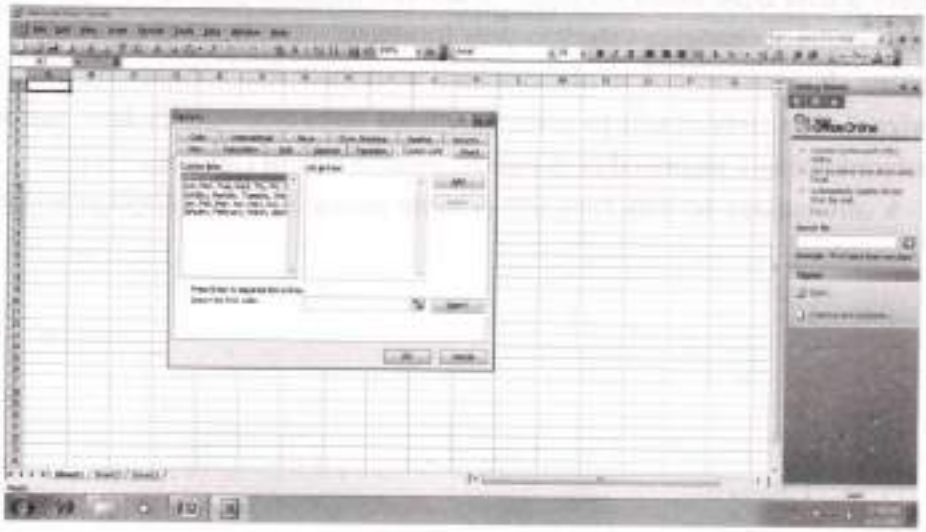


We can cutomize the lists with different text data to minimize the redundancy of work. Some of the lists are listed below.

1. Jan, Feb, Mar, Apr, May, June, July…… like months
2. Sunday, Monday, Tuesday, Wednesday, Thursday….. like week days.
3. Adilabad, Anantapur, Chittor, Cuddapah…… like District names.
4. Ravi, Kiran, Praveen, Rama…..like employees list

To create a cusmozed list followthe steps given below:

- Click **Tools** Menu, Click **Options** then click **Custom Lists** tab, Then you will find the figure given below:



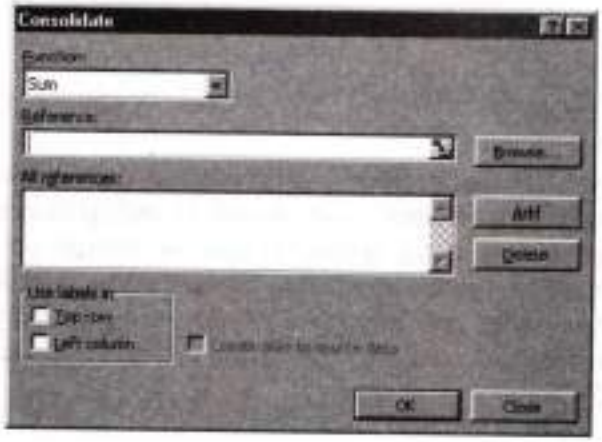
- Click **New List** and enter the list in the **List entries** window

- Click **Add** button then click **OK** button then your list will be added to the **Custom Lists.** That list you can use as and when requied to type.
- Now you can drag the **Fill handle** (+) to get the list automatically.

2.2.10 Data Menu

- **SORT:** - It arranges the information in selected rows or columns list alphabetically, numerically, or by date.

- **Filter:** - It displays only those values that match the value in the active cell. AutoFilter gives arrows to the right of each column label.
- **Form:** - It displays a data form in a dialog box. You can use the data form to see, change, add, delete, and find records in a list or database.
- **Sub Totals:** -It calculates sub total and grand total values for the labeled columns you select. MS-EXEL automatically inserts and labels the total rows and outlines in the list.
- **Validation:** -It defines what data is valid for individual cells or cell ranges; restricts the data entire for to a particular type such as whole numbers, decimal numbers or text; and sets limits on the valid entries.
- **Table:** -It creates a data table based on input values and formulas you define. Data tables can be used to show the results of changing values in your formulas.
- **Text to Columns:** -It separates text in one cell on a worksheet into columns by using the convert text column wizard. The convert text to columns wizard helps you specify how you want be text divided into columns using a separated or delimiter, such as tabs or commas.
- **Consolidate**: - It summarizes the data from one or more source areas and displays it in a table.



- **Group And Outline**: - It creates and cleans groups, subgroups and outlines.
- **Pivot Table and Pivot Chart Report**: - It starts the pivot table wizard, which guides you through creating or modifying a pivot table.
- **Get External Data**: - It creates and runs web or database queries.
- **Refresh Data: -** It updates the data in a pivot table if the source data has changes.

MS-POWER POINT

2.3.1 Powerpoint Basics: -

PowerPoint is a presentation program that produces colorful professional presentation slides. It is used to create presentation slides, overheads transparencies, handouts and speaker notes. It takes you by the hand and gives you helpful suggestions on the layout, design, and formats of your slides. It enables us to include charts and graphs, produces organization chart, present tables, and display a presentation as a fully animated screen show. It provides you rehearsal tools that can practice your presentation at your desktop. Delivering our presentation successfully involves using a four-step process: PLAN, PREPARE, PRACTICE, PRESENT.

Starting MS-Powerpoint

From Start button: -

- Click **Start** on the **task bar**.
- Select **Programs**.
- Click **MS-POWERPOINT** from Programs menu.

From Shortcut bar: -

- Click Microsoft PowerPoint button on Ms-office shortcut bar.

From Desktop: -

Double click the Ms-PowerPoint icon on Desktop.

Another method is

- Click **Start** on the **task bar**.
- Select **Run**. It shows a dialog box as given below.
- Type **Powerpnt** and then click **OK.**

Procedure to quit Power Point: -

- Click the file option in the menu bar which displays a menu
- Select exit option in the menu, which quits the PowerPoint application.

2.3.2 Ready-Made Slide Layout Scheme: -

There are various readymade slide layout schemes available in MS-Power Point software. One can select the various schemes available by using the following procedure.

- In the blank presentation right click the mouse which displays a command window with various options.
- Select the apply design template option. This option displays a dialog box with various design templates.
- One can select the various options which display a preview for every design.
- After designing the design template, one can click the OK button, so that the selected design template will be applied for our presentation.

The lists of various ready-mades like slide layout scheme are

Artsy	Azure	Bamboo	Blue diagonal	Blue print
Cactus	Capsules	Checkers	Cilrus	Construction
Dads tie	Expedition	Factory	Jesture	Fire ball
Global	High voltage	Japanese waves	Lock and key	Marble
Mountain	Nature	Note book	Post modern	Pulse
Radar	Ribbons	Rice paper	Sakura	Sand stone

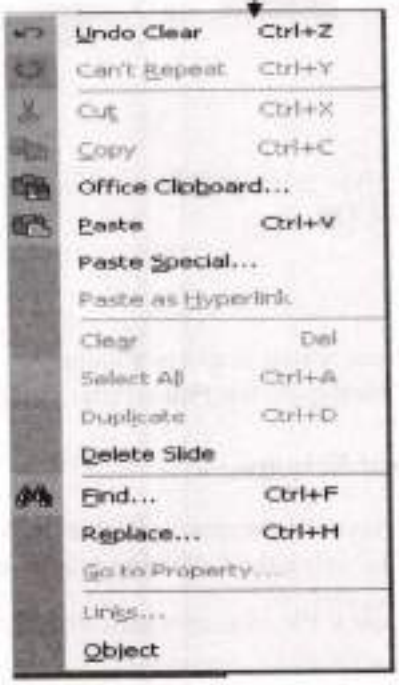
Entering and editing text: -

Most of the slide layout contains place for text, labeled click to add title or click add text. Follow the instructions of the label in the placeholder of a title to add text. The place holders make are a quick and convenient way to add slides but you can also add text to any part of slide text boxes. To enter text in a placeholder click or double click in it and type text that depends on label. One can use arrow keys to move around. Use the enter key to start a new paragraph use delete and backspace keys to delete characters and use alignment buttons to align text. Click out side the placeholder to make the text entry finished. One can use the text button or WordArt button in the drawing toolbar, click where you want the text on the slide, drag the size you want and finally leave the mouse button, enter your text in the

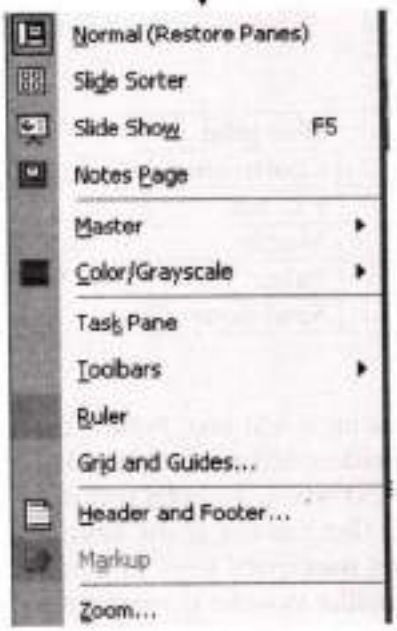
box and click out side the box to finish. All selection and text formatting techniques are same, as we have seen in the MS-Word.

FILE

EDIT



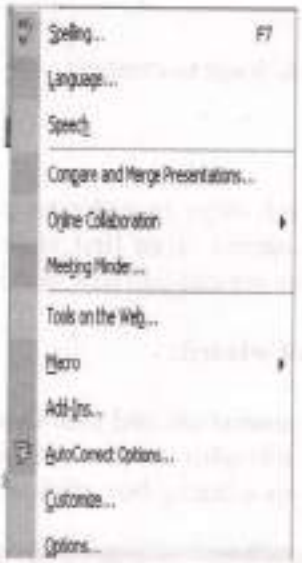
VIEW



INSERT

FORMAT

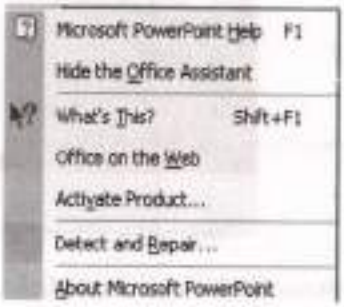
TOOLS



SLIDE SHOW

WINDOW

HELP



2.3.3 File Menu

- **NEW**: - It creates a new blank file based on all default values.

2.3.3.1 To create a new presentation: -

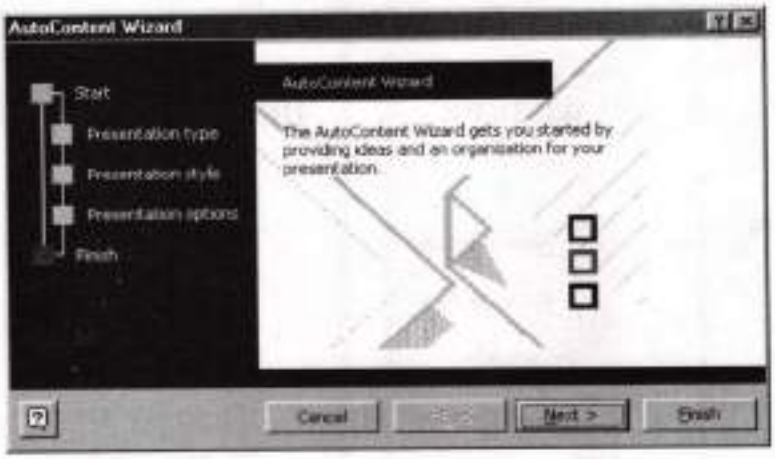
To create a new presentation there are three ways to create it.

Auto content wizard
Design template
Blank presentation.

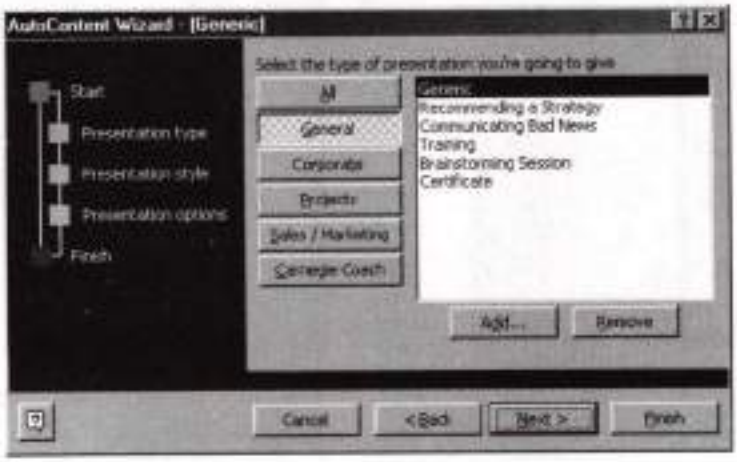
Auto content wizard walks us through steps in order to create a presentation. Design template gives our presentation as graphical consistency from first slide to the last slide. Blank presentation enables us to start with blank slide and later we can add new slides, layouts & designs.

Create a presentation using auto content wizard: -

1. On the file menu click new, click the general tab and then double click auto content wizard.(or)after starting power point application. Click auto content wizard radio button under create a new presentation dialog box. Then it displays a dialog box click next.

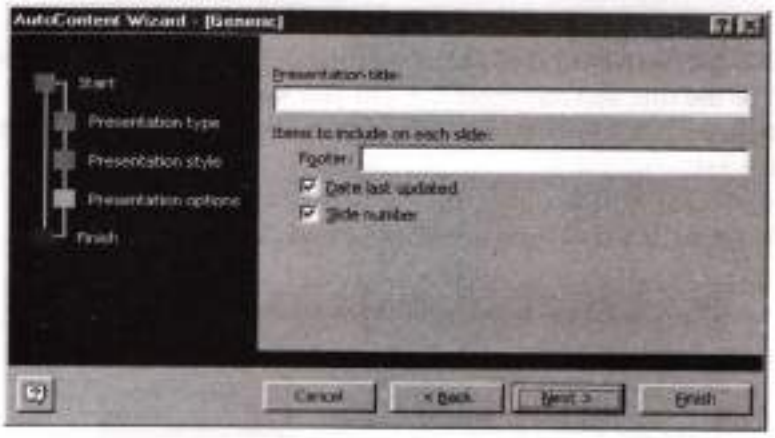


2. Select the presentation type and click.

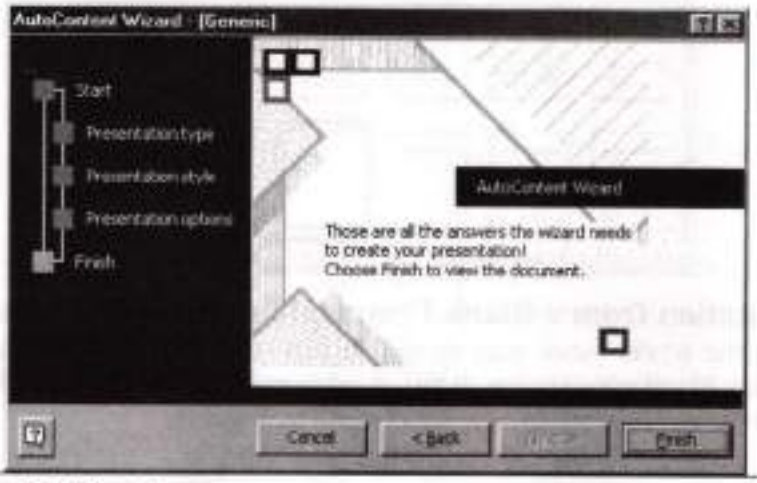


3. Select the presentation style and click next.

4. Enter the presentation title on the presentation. Title text box enter footer and style other options and then click next.

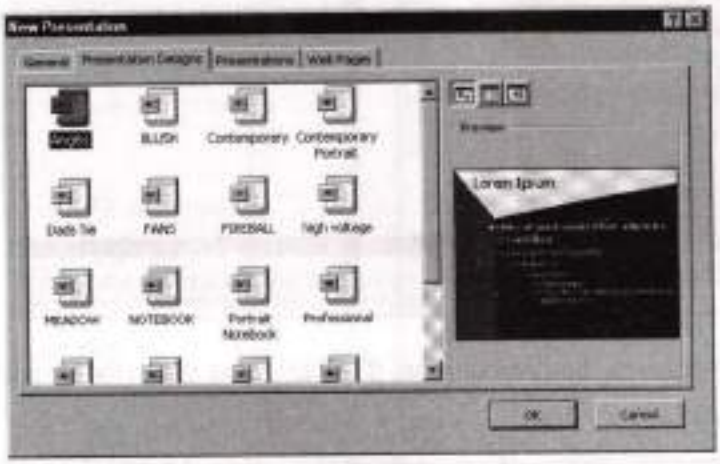


5. Click finish to open a sample presentation that we can add our own words and pictures.

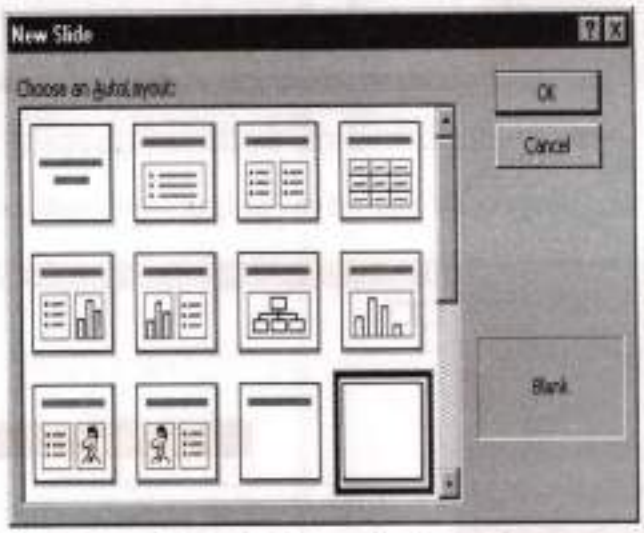


Create a Presentation using a Design Template:

1. Click new in the file menu, click design template tab (or) choose design template radio button at start up of power point in create new presentation dialog box.
2. Scroll to see the entire design template and click any one you want and then click ok in the new presentation dialog box.

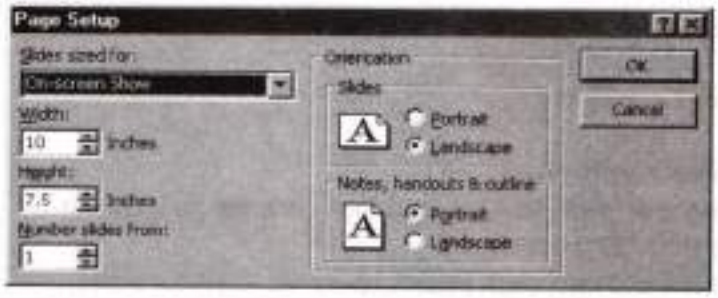


3. Scroll to see all the slide layouts and then select a layout for your title slide in the new slide dialog box and click ok. Type the title and any other content you want on two title slide.
4. On the formatting toolbar click common tasks. Click new slides then select a layout.
5. Add the content you want.
6. Repeat the step 4,5 and 6 to get more slides that are new slides.
7. Click save on the file menu and save with a new name and click save.



Creating a presentation from a Blank Presentation: -To create a blank presentation choose blank presentation in the power point start up dialog box (or) click file menu and select new click general tab double click blank presentation. It will display new slide dialog box choose the auto layout for the type of slide we want to create and click ok button to create it.

- **Open:** -It opens or finds an existing file.
- **Close:** - It closes the active without existing the application. If the file contains any unsaved changes, you will be prompted to save the file before closing.
- **Save:** -It saves the active file with its current file name, location, and file format.
- **Save as:** -It saves the active file in a different file name, location or file format.
- **Save as Web Page:** -It saves the file as one required for creating documents for the internet (World Wide Web).
- **Pack and Go:** - It starts the pack and go wizard, which help you pack up a presentation so that you can run it on another computer. If you make change to your presentation after you use the wizard, run the pack and go wizard again so that you can update the information.
- **Web Page Preview:** -It allows you to preview the current file as a web page in your browser so that you can see how it will look before publishing it.
- **Page Setup:** - It sets margins, paper source, paper size, page orientation, and other layout options for the active file.



- **Print:** -It prints the active file or selected items to the selected printer or fax.
- **Send to:** -It sends the document to a mail recipient as an e-mail.
- **Properties:** - It displays the property sheet for the active file.
- **Exit:** - It closes the program after prompting you to save any unsaved files.

2.3.4 Insert Menu

- **New slide:** Prompt you to click a slide layout, and then insert a new slide after the active slide. To add new slides to our existing presentation follows the steps bellow: -

- Click the new slide in the insert menu displays various layouts.
- Select the layout of our liking and then click OK.
- The selected layout will be applied as a new slide.

- **Duplicate slide:** Insert a copy of the current slide after the current slide. Equivalent to pressing **CTRL+SHIFT+D.**

- **Slide number:** Adds the slide number to an individual slide. If you want to add the slide number to every slide, use the **header and footer** command (**view** menu).

- **Date and Time:** Inserts current date and /or current time field that are updated every time you open or print this document.

- **Symbol:** Insert symbols and special characters from the fonts that are installed on your computer.

- **Comment:** Insert a comment at the insertion point.

- **Slides from files:** Inserts slides from another presentation into the current presentation.

- **Slides from outline:** Creates slides for all first-level headings in an imported outline and adds the body text as indent levels. All text that is level 6 and below is treated as level 5 text. The format for the title and text comes from the slide master in the current presentation.

- **Picture:** Insert pictures from clip art and other libraries.

Procedure to insert picture:

❖ **Insert a picture from clip gallery:**

- Display the slide we want to add picture to.
- Click insert clip art on the drawing tool bar, and then click the pictures tab.
- Click the category we want from the clipart.
- Click the picture we want and then click insert clip on the short cut menu.
- When we are done using the clip gallery, click the close button on the clip gallery title box. The simplest method is to drag a picture from the clip gallery to our slide.

❖ **Insert an imported picture:**

- Display the slide in which a picture to be added to add the picture to every slide in our presentation, add it to the slide master.
- Point to picture on the insert menu and then click, from file.
- Locate the folder that contains the picture we want to insert.
- Click the picture.
- To embed the picture in to our presentation, click insert. To link the picture in our presentation to the picture file on our hard drive, click the arrow next to insert and then click link to file.

You can also add pictures to our note pages. To do this click notes page on the View menu and then add picture we want.

- **Text box:** Draws a text box where you click and drag in the active window.

- **Movies and sounds:** Insert videos and sounds from clip gallery, movie files or audio CDs to your slide during show. You can also record sound or a comment to an active slide with the help of a microphone attached to your computer.

Procedure: -

- Display the slide in which you want to add sound or video clip.
- On the **Insert** menu, point to **Movie and Sounds.**
- Do step3.1 inserting a sound, or step 3.2 for inserting a video clip.
- To insert a sound from the Clip Gallery, click **Sound from Gallery,** and then locate and insert the sound you want. To insert a sound from another location, click **Sound from File,** locate the folder that contains the sound, and then double-click the sound you want.
- To insert a video from the clip gallery, click **movie from gallery**, and then locate and insert the video you want. To insert a video from another location, click **movie from file**, locate the folder that contain the video, and then double click the video you want
- A message is displayed. If you want the sound or video to play automatically when you go the slide, click **yes;** if you want it to play only when it to play when you click the corresponding icon during a slide show, click **no**

- **Chart:** Creates a chart by inserting a Microsoft graph object.

- **Table:** Insert a new Microsoft word table on the active slide. This command is available only in normal and notes view.

- **Object:** Insert an object such as a drawing, ***word art*** text effects, etc. at the insertion point.

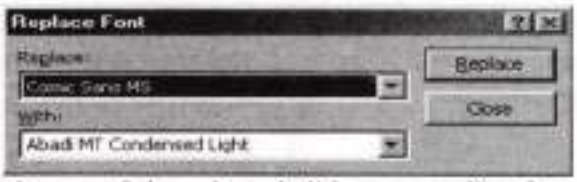
- **Hyperlink:** Inserts a hyperlink through which you can jump to a location in the current document or webpage, or to a different word document or webpage, or to a file that was created in a different program.

2.3.5 Format Menu

- **Font** Changes the font and character spacing formats of the selected text.
- **Bullets and Numbering** adds bullets to or removes bullets from selected paragraphs.
- **Alignments** align the selected text, number or online objects to the left, right, centre, and justifies with a ragged right edge.
- **Line spacing** sets the amount of space between selected lines of text.
- **Change case** changes the capitalization of selected text.
- **Replace fonts** replaces an existing font in your presentation with another one.

Procedure:

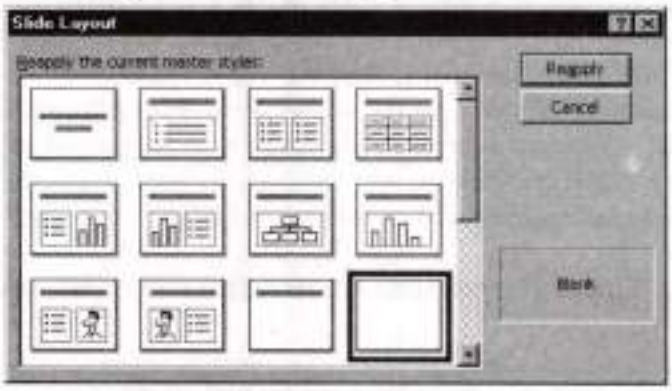
- Select the font to be replaced.
- Click the format menu
- Select replace font then it shows the dialog box as shown below.
- Click the dropdown arrow of with text box and select font
- Click replace button to change the font into the selected font.



- **Slide layout** changes the layout of the selected slide or reapplies the current master's styles to the place holders if you have modified their attributes. This command does not affect objects and text and outside the placeholders.

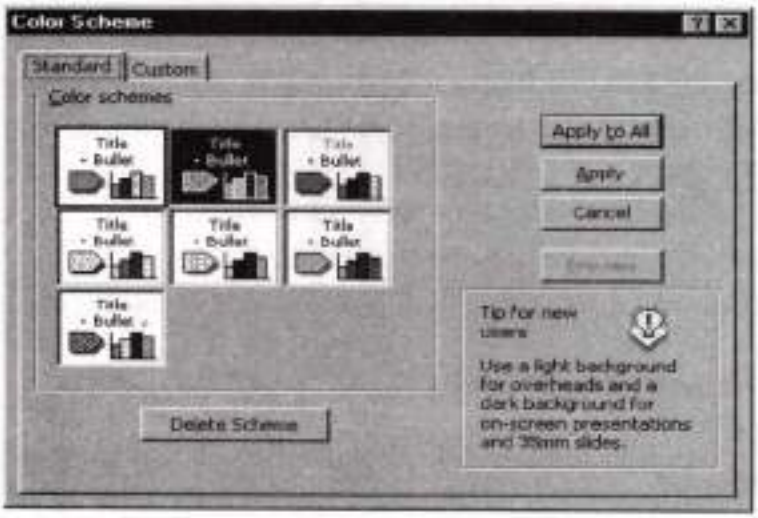
Procedure

- Select the slide to which slide layout has to be changed.



- Select **slide layout** from the **format menu**. Then it displays a dialog box as shown below.
- Select any one of them.
- Click **REAPPLY.**

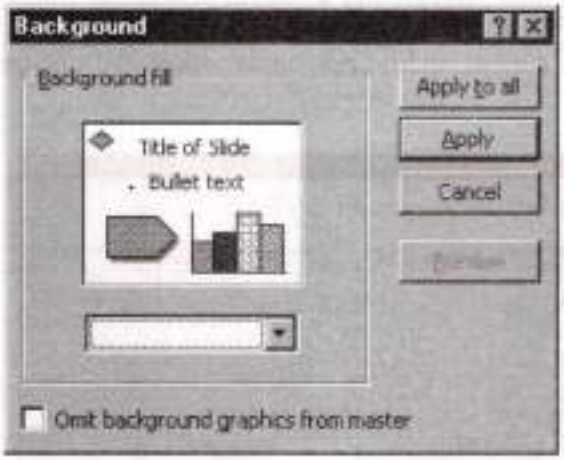
Slide color scheme reapplies or modifies the existing color schemes or changes to a different color schemes



- **Back ground** adds different kinds of backgrounds, such as a woven texture, to word documents and webpage to make them look more interesting.

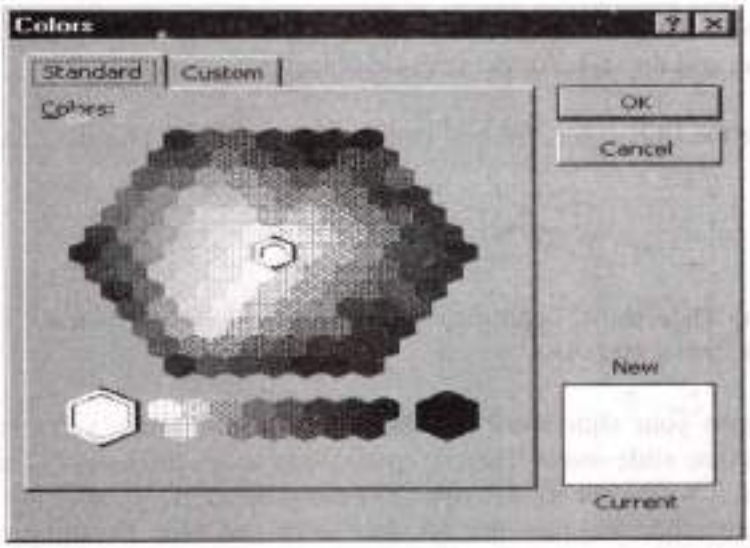
Procedure: -We can change the appearance of our slide back ground by changing its colors, shade, pattern or texture. We can also use a picture as a slide background, but we can use only one type of background on a slide or master.

1. Click background on the format menu to display the background dialog box.



2. Under background fill, click the down arrow.
3. Follow the following steps to modify background.

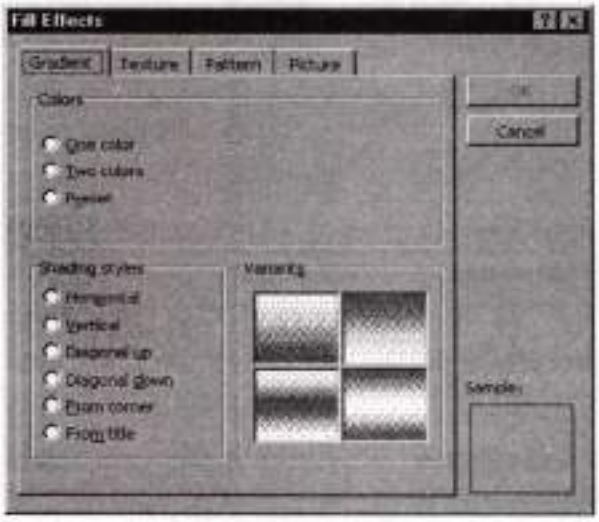
- To change to a color in the color scheme, click one the eight colors bellow automatic to change to a color that is not in the color scheme, click more colors click the color we want on the standard tab or click the custom tab to mix our own color and then click ok. To change the background color back to its default, click automatic.
- To add or change a shaded slide background, click fill effects and then click the Gradient tab. Click the option we want and then click ok.



- To add or change a textured background, click fill effects and then click the textured tab. click the texture we want, or click other texture and find the texture we want, and then click ok.

- To add or change a slide background picture, click fill effects, and then click the picture tab. Click select picture, find the folder that contains the picture we want, double click the file name and then click ok.

- To add or change a pattern slide background click fill effects and then click the pattern tab, click the option we want and then click ok.
- To apply the change to the current slide, click apply, apply the change to all slide and the slide master, click apply to all.



- **Apply design** template applies one of the power point design template to your presentation or uses one of your own presentation as a template. Design templates contain color schemes, slide and title masters with custom formatting, and fonts designed for a particular "look".

- **Colors and lines** opens the color and lines tab (format auto shapes dialog box), where you can set the line and fill colors and the style for the selected object or auto shape

- **Auto shapes** format the line, color, fill and pattern size, position, and the other properties of the selected object.

2.3.6 Slide Show

- **View show** runs your slide show, beginning with the current slide if you are in slide view or the selected if you are in slide sorter view.

- **Rehearse timings** runs your slide show in rehearsal mode, in which you can set or change the timing of your electronic slide show. There are two ways to set the length of time for a slide that appears on the screen if we do not want to manually move through a slide show. One way is to set a time manually for each slide and then run the slide show and view the timings we set. The other way is to use the rehearsal feature where we can record timing automatically as we rehearse.

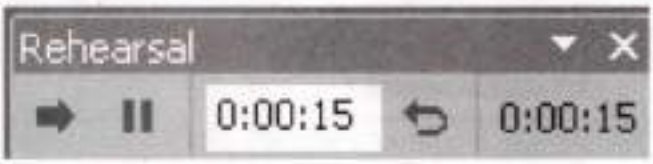
Procedure to set slideshow timings manually: -

- Open the slide or slides of insert in normal or slide sorter view.

- Click slide transition on the slide show menu to display the follow, the slide transition dialog box.
- In the dialog box under advance, click automatically after and then enter the no: of seconds that we want the slide to appear on the screen.
- Click apply to apply the timing to the selected slides. Click apply to all to apply the timings to all the slides.
- Repeat the process for each slide we want to set the timing for
- If you want the next slide to appear either when we click the mouse or automatically after the number of seconds we enter, which ever comes first, select both the on mouse click and automatically after check boxes.

Procedure to Set Timings Automatically Whle Reharsing: -

- Select rehearse timings on the slideshow menu to start the show in rehearsal mode.
- Use next pause and repeat buttons on the rehearsal window when we are read to go to the next slide, pause the current slide rehearsal and repeat the current slide rehearsal again respectively.
- When we reach the end of the slideshow. It prompts whether we want to record the rehearsal timings. Click yes to accept timings or no to try again.



- **Record narration** adds voice narration to your slide show.

- **Setup show** set options for running you slide show, including the type of presentation you are making, which slides to include whether to include sound and animation effects, the annotation pen color, and how you want to advance the slides.

- **Actions buttons** inserts various option buttons, where you click or drag in the active window, and then opens the active settings dialog box, where you can assign an actions button.

- **Actions settings** assign an action to the selected object or action buttons that runs when you point to or click the object with the mouse.

- **Present animation** you will find various sub-options with in this by which you can apply various animation actions as per your slide.

- **Custom animation** adds or changes animation effect on the current slide. Animation effect includes sounds, text and object movements, and movies that occur during a slide show. One can animate text, graphics, sound, movies, charts and other objects on our slides so that we can focus on important point, control the flow of information so that our presentation creates insert. For example, we can animate text to fly from left, so that the sentence appears letter by letter, word or sentence it self. For creating text animation in the slide the procedure is as flows.

- Display the slide in normal view that has the text.
- Click custom animation on the slide show menu and in that click the effects tab.

- Under check to animate slide objects, select the check box next to the next or object you want to animate.
- Under entry animation and sound and introduce text (for the text animation) select the option we want.
- Repeat steps 3 and 4 for every object we want to animate.
- Select the object to set the timing and do one of the following.
- To start the animation with mouse click in the on mouse click radio button.
- To start the animation automatically, click in the automatically radio button and then enter the number of seconds. We want to have elapse between the previous animation and the current one.

- Click preview to preview animations.

- **Animation preview** runs or the animations effect for the current slide in a slide-miniature window. So you can see how the animation will work during the slide show.
- **Slide transition** adds or changes the special effect that introduces a slide during a slide show. For example you can play a sound when the slide appears, or you can make the slide fade from black.
- **Hide slide** you can hide the selected slide and current slide if you are in slide sorter view and slide view respectively.
- **Custom shows** creates a custom show- a presentation with in presentation

Presenting: - There are different ways to deliver a presentation; Microsoft power point gives us the following ways to deliver our presentation.

* On screen presentation
* Presentation on the web
* Overhead transparencies
* Paper printouts
* 35 mm slides
* Notes, handouts and out lines

On Screen Presentation:

Setup a slide show: Before giving presentation, we have to specify how our presentation runs.

* On the slide show menu, click set up show to display the setup show dialog box.
* In the dialog box, select the option we want under the show type frame.
* In the slide box, choose whether we want to include all slides and other option.
* In the advance slides box choose manually if you want to change slides at our convenience, choose using timings if we have set timings.
* Choose pen color from the pen color drop down list, click ok to save changes and close the dialog box or click cancel to close with out savings.

START a SLIDE SHOW: From within power point do any of the following

* Click slide show icon at the lower left of the power point window.
* Click view show on the slide show menu.
* Click show on the view menu.
* Press f5.

Start a custom show: This procedure sets the presentation to display only the slides in the custom show.

* Click set up show on the slide show menu.
* Click custom show, and then select the show we want in the list.
* Click ok.
* Start the slide show.

MS-ACCESS

2.4.1 Access Basics:

MS-Access is a Relational Data Base Management System (RDBMS). Database is an organized collection of a data about one particular purpose. A data base management system is a software with the help of which we can create a database or access that database. A relational data base management system set up relations ships among different databases.

Purpose of Access: -

- It is used to create our own database and database objects, such as tables, queries, reports etc.
- It is used to store and retrieve desired information.
- It permits us to collect, organize, find, display, print information.
- It comes with a number of predefined data base designs.
- It has a utility to convert access data base to World Wide Web format and vice versa.
- It can also accept data types from many other sources directly.
- It provides user-level security in order to restrict access to certain data base object to only those with an authorize user name and pass word.
- It supports visual basic.

2.4.2 Components:

- **Database**: A database is as a collection of visual data that is related to a particular subject or purpose such as tracking customer orders or maintaining a music collection. It includes objects such as tables, queries, forms etc. it is usually composed of multiple tables.
- **Tables**: A table is a collection of similar data about a specific topic such as products or suppliers. It is a combination of row, and columns. Each row data referred as a record and columns as a field. A separate table for each topic implies that we store the data only once, which makes our data base more efficient and reduces data entry errors.
- **Record:** A record is all the information contained in one row of an access data sheet table. Records are made up of fields
- **Field:** A field is the individual components of a record. When we create a table, we name its fields and designate what type of data they contain.
- **Query:** It is a request to MS-ACESS for information. You use queries to view, change, and analyze data in different ways. You can also use them as the source of records for forms, reports, and data access pages.
- **Form**: It is an onscreen arrangement that makes it easy to enter and read data.
- **Relational Databases:** MS-ACCESS is a relational database that allows data stored in different places to be communicated.

- **Report:** A report is an effective way to present your data in a printed format. Because you have control over the size and appearance of every thing on a report, you can display the information the way you want to see it.

How to open Access

From Start button: -

- Click **Start** on the **task bar**.
- Select **Programs**.
- Click **MS-ACCESS** from Programs menu.

From Shortcut Bar

Click MS-Access icon from Shortcut bar

From Desktop: -

Double click the MS-ACCESS icon on

Desktop.

Another method is

- Click **Start** on the **task bar**.
- Select **Run**. It shows a dialog box as given below.
- Type **MSACCESS** and then click **OK.**

Procedure to quit a MS-ACCESS: -

- Click the **file** option in the menu bar which displays a menu
- Select **exit** option in the menu, which quits the MS-ACCESS application.

2.4.3 Data Types in Ms-Access

A database is a collection of tables and other objects. Table is represented by a set of rows and columns. A column holds the same type of data in all rows. Each column is identified by its column name or field name. Column and filed are used interchangeably. So a filed name is a name given to a column to identify the column and make reference to it in calculations and queries. Data type is a type of data that column holds such as text number data etc. Property is a named attribute of a field. Properties let us specify things like the maximum length of entries, color etc. While creating table we must specify the field names its type and its properties. Once we have chosen a field's data type, its property list is displayed in the bottom half of the dialog box. Different data types offer different properties. A brief description of various data types and their sizes are given in the following table.

Data type	Explanation	Size
Text	It is the default data type. It holds text or combination of text and numbers, as well as numbers that do not require calculations, such as phone numbers.	Up to 255 characters length set by filed size property. Micro soft access does not reserve space for UN used portions of a text filed.
Memo	It is used for lengthy text. This holds combinations of text and numbers.	Up to 65,535 Characters.
Number	It holds numeric data used in mathematical calculations.	1, 2, 4 or 8 bytes.
Date and time	It holds date and time values for the years 100 through 9999.	8 bytes
Currency	It holds currency values and numeric data used in mathematical calculations involving data with one to four decimal places accurate to 15 digits on left side of the decimal separator and to 4 digits on the right side.	8 bytes
Auto number	It holds a unique sequential number or random number assigned by MS Access whenever a new record is added to a table. These fields cannot be updated.	4 types.

Yes or no	It holds yes or no values. It is used for fields that contain only one of two values (yes/no, T/F or on /off)	1bit
OLE object	It holds an object such as a MS Excel spread sheet, a MS Word document, linked to or embedded in a micro soft access table.	Up to 1 giga byte (limited by available disk space).

2.4.4 Creating Database: Data is a raw fact, which can be recorded. Database is a collection of data. It contains information about one particular subject. In other words, it is nothing but a collection of plain old facts: facts about stocks and facts about flights, facts about employees and facts about customers. In access it is one or more tables of data that are organized or stored in a very structured way. Databases are used in an amazing number of places. A database is interacted when you order some things by mail or phone etc. A database is designed to manage large bodies of information. The database management system involves both the definition of structure for the storage of information and the provisions of mechanisms for the manipulation of information.

File

Edit

View

Insert

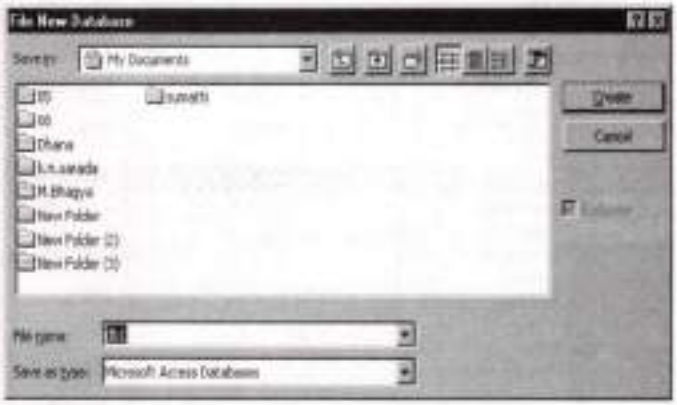
Query

Tools

Steps for creating a database: -

- When Microsoft Access first starts up, the Microsoft Access dialog box is automatically displayed with options to create a new database or open an existing one. If this dialog box is displayed, click Blank database in the **Create a new database using** frame, and then click OK. If you have already opened Micro soft Access applications select new from File menu or press ctrl +N. it displays the new dialog box. On the General tab double click the Database icon. Or on the Database tab, double click the icon for the kind of database *you* want to create.

- Then **File New Database** dialog box appears. Specify a name and location for the database.



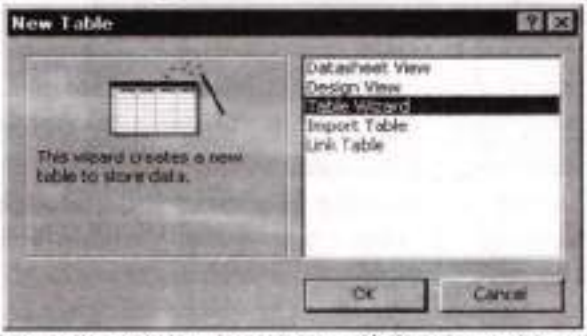
- Click create to start defining your new database. Then the database window appears in your file name as shown. You can use minimize, restore, or close control button to control the database window. Once your database has been created you can create any elements of the database like tables, forms, reports, etc.

2.4.5 Table Creation: -

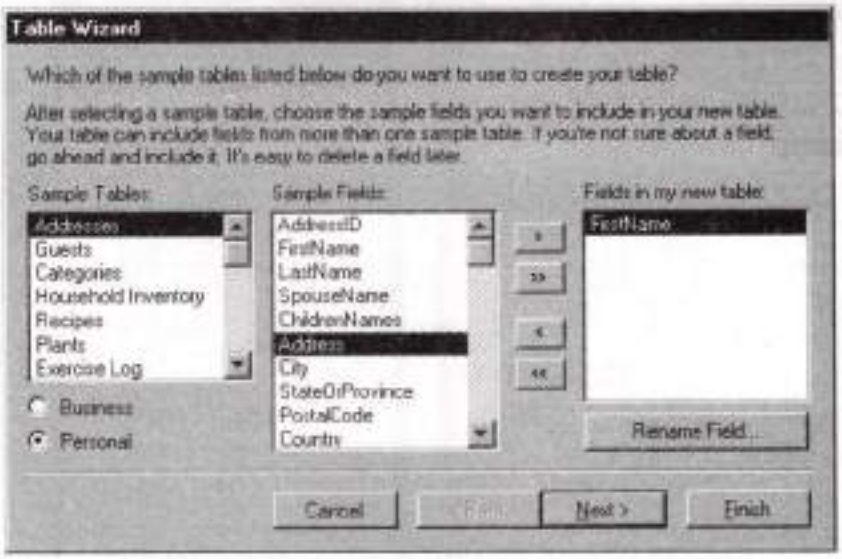
Once a database is created you are ready to create the objects that the database needs. Here we will see a table creation. You must set up a field in order to hold the data in the table. In Access, these fields will become columns in your database table.

Create a Table by Using the Table Wizard: -

1. Open the database that needs a new table (not available create the database). If already opened, switch to the database window. You can press F11 to switch to the database window from any other window.
2. Click **TABLES** under **Objects** and then click **New** on the Database window toolbar then it shows the following **New table** dialog box.

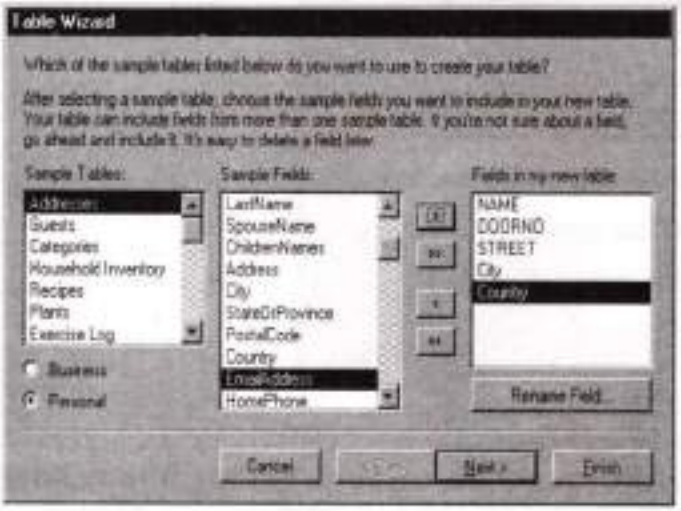


3. Double-click **Table wizards in the above dialog box** then the **Table wizard** is displayed as shown in fig. In the **Table wizard**, read the instructions given and do the following.



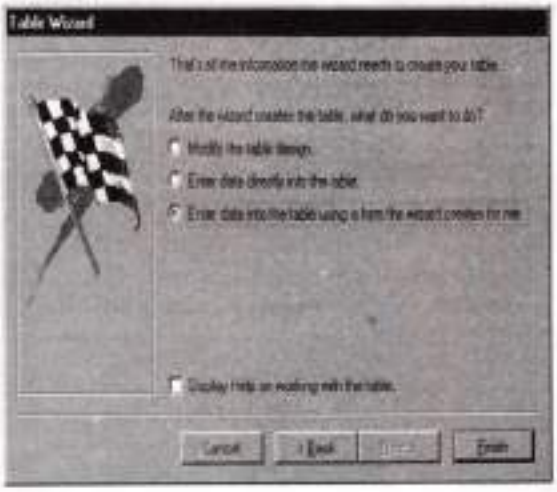
4. There are two table categories, Business and personal. Select one of them in the wizard window. Then you will see the sample tables under the selected category in the **Sample Table** list. Scroll the **Sample Table** list to see the available table types.
5. Click once on a table of select it in the **Sample Table** list, and see the available sample fields in the **Sample Fields** list. Scroll if necessary to see all the fields in the list.
6. Initially the **Fields in my new table** list is empty. Now add the necessary fields from the **Sample Fields** list to your table. To add fields from the **Sample Fields** list to your new table, you can either double-click on a field name or select the field name and click on the > button between the two windows. To add all fields from the **Sample Fields** list to your table, click on the >> button.
7. To remove a field from your table, click it to select and then click on the < button. To remove all fields from your table click on the << button.
8. To change any field name in your new table, select the field name to be renamed and click on **Rename Field** dialog box(as shown below), remove the old name and type a new name in the **Rename Field** text box and then click OK.

9. Like that performing adding, removing, or renaming your table gets the required fields. At last field names in your table is as shown in fig. Then click on the **Next** button to name your table. Table can be up to 64 characters and can include spaces. It is illustrated in Fig

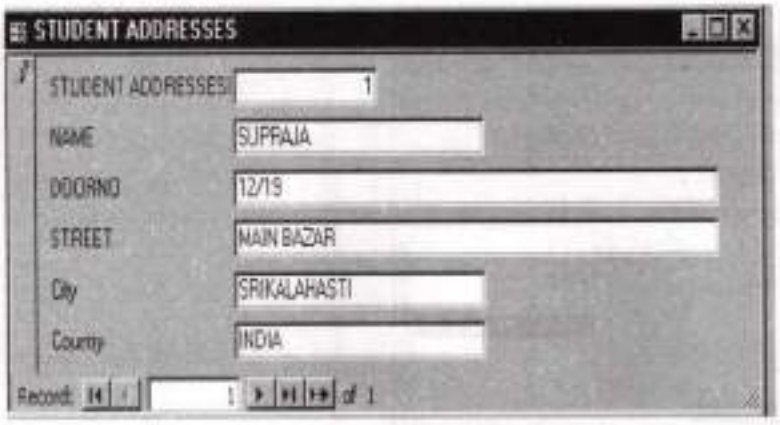


10. Select **Yes, set a primary key for me** to create a primary key by the Access. Otherwise select our option to create the primary key by yourself letter. Beginners it is better to create the primary key by the access. Then click **Next** button to display the following window. Here you have three choices: modify the table design, enter data directly in to the table, and enter the data in to the table using a form the wizard creates for me.

11. In the below fig select **Modify the table design** option to modify table specifications in design view. Select **Enter data directly in to the table**. Option to enter data directly in to the table. Or select the remaining option to enter data in to the table using a form and save it in to a form name as shown in fig. For saving click the save button on the standard toll bar or use CTRL+ S and enter the form name.



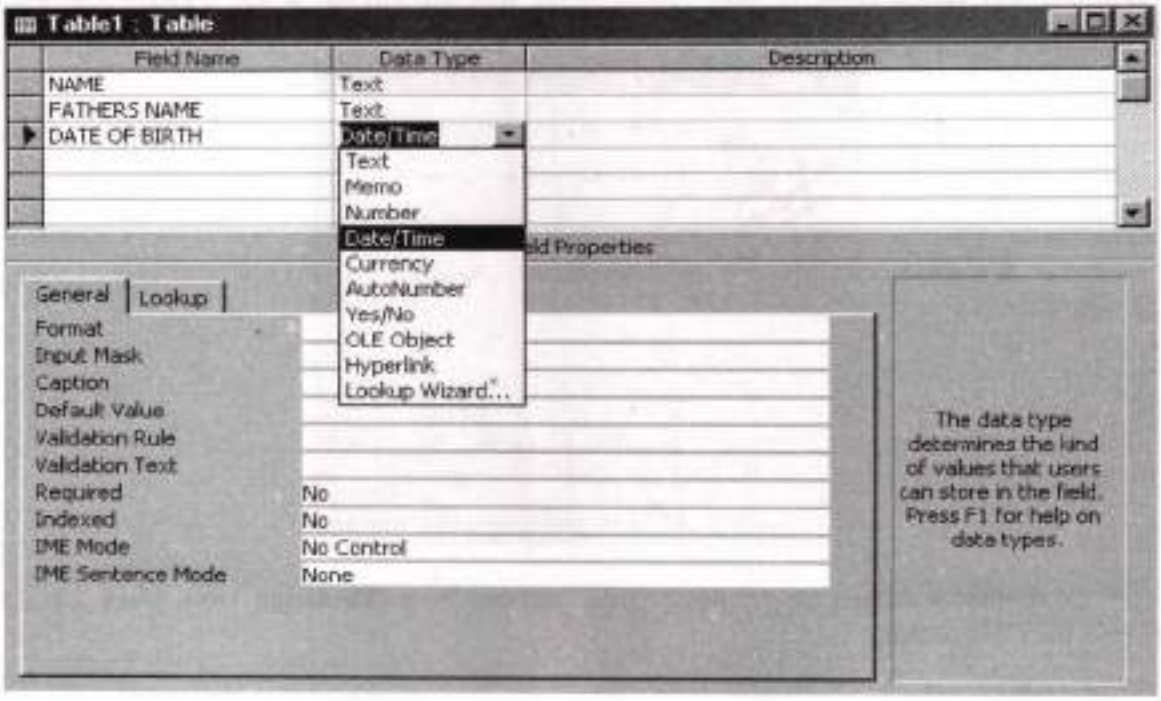
If you want to modify or extern the resulting table, you can do so in design view when you have finished using the table wizard.



Create a Table without using the Table Wizard: -

Designing tables without using the wizard requires considerable attention. You will need to decide which information to collect and what names to give each table and you will need to specify the types of fields you will be using, and their properties, and other things. So to create a table, you must specify a field name, its data type, and its other properties for all fields.

1. Open the database that needs a new table, or if not available create a new database.
2. Click **Table** under **Objects**, and then click **New** on the database window toolbar then it shows the **New table** dialog box.
3. Double-click on **design view** in the **New Table** box. You will see an empty table window as shown in fig.



4. Now you can type field names, select its data types, and type any other properties. In the **Description** column, type a description of the information this field will contain. This description is displayed on the status bar when adding data to the field. It is optional. After all specification are over save to a table name. As shown in fig.

Open a table: -

1. In the data base window, click **Tables** under **Objects**.
2. Click the name of the table you want to open.
3. To open the table in design view, click **design** on the data base window toolbar. To open the table in the data sheet view, click **open** on the data base window toolbar. After you have opened a table, you can easily switch between the two views by clicking the **View** button on the toolbar.

Switch Between Views of a Table: -

Tables have two views: design view and datasheet view. You use design view to create and modify the structure of a table. You use data sheet view to view, add, delete, and edit data in a table. Click the **View** button on the toolbar. The **View** button is a toggle button. When your table is displayed in data sheet view, only button to switch to design view is displayed, and vice versa.

Adding fields:-

- Open the appropriate data base.
- Open the table in design view.
- To insert a field with in the table, click in the row below where we want to add the field and then click insert rows on the toolbar. To add the field to the end of the table, click in the first blank row.
- Click in the field name column and type the name for the field.
- In the Data type column, type a description of the information, this field will contain. This description is displayed on the status bar when adding data to the field the description is optional.
- If we want set field properties for the field in the bottom part of the window.
- Click the save button on the toolbar and close the table design view window.
- If we want to add additional fields, repeat step 3 to 7 as necessary.

Deleting fields: -

- Open the appropriate data base
- Open the table in design view
- Select the field or fields we want to delete. To select one field, click that fields row selector. To select a group of fields, drag through the row selectors of those fields.
- Click delete row on the toolbar.
- Access asks for confirmation, click yes if we want to delete or other wise click no.
- Save the changes clicking the save button on the toolbar and close the table design view window.

Renaming fields: -

- Open the appropriate data base
- Open the table in design view
- Double-click the field name we want to change
- Type the new field name
- Click the save button on the toolbar to save our changes and enclose the table design view window

Purpose of primary keys: - A primary key uniquely identifies each record in the table. MS Access has ability to quickly find and bring together information stored in separate tables using queries, forms and reports. In order to do this, each table should include a field or set of fields that uniquely identifies each record stored in the table called the primary key of the table.
Once we assigned a primary key for a table to ensure uniqueness, MS Access will prevent any duplicate null values from being entered in the primary key fields. There are three kinds of primary keys that can be defined in ms access. Auto number, single field and multiple fields. The can only be one primary key in a table but a primary key can use multiple fields.

Auto number primary key: -An auto number field can be set to automatically enter a sequential number as each record added to the table. Setting such a field as the primary key for a table is the simplest way to create a key. If we do not give a primary key before saving a newly created table, MS Access will ask if you want it to create a primary key for you. If we answer yes, MS Access will create an auto number primary key.

Single field primary key: - If we have a field that contains unique values, we can designate that field as the primary key. If the field we select as primary key has duplicate or null values, MS Access will not set the primary key.

Multiple field primary keys: - In situations where we cannot, guarantee the uniqueness of any single field, you may be able to designate two or more fields as the primary key. If you are in doubt about whether you can select an appropriate combination of fields for a multiple field primary key, you should probably add an auto number field and designate it as the primary key instead.

Creating the primary key: -

- Open the appropriate data base
- Open a table design view
- Select the field or fields we want to define as the primary key. To select one field, click the row selector for the desired field. To select multiple fields hold down the ctrl key and then click the row selector for each field.
- Click primary key on the toolbar

You can specify a primary key for a field that already contains data, but Micro Soft Access generates a message, when we save the table if it finds duplicate values or null values in the field.

Remove the primary key: -

This method does not delete the field or fields that are designed as the primary key, it simply removes the primary key features from the table. If the primary key is used in a relationship before we can remove the primary key.

- Open the appropriate database.
- Open the table in design view
- Click the row selector for the current primary key and click primary key on the toolbar.

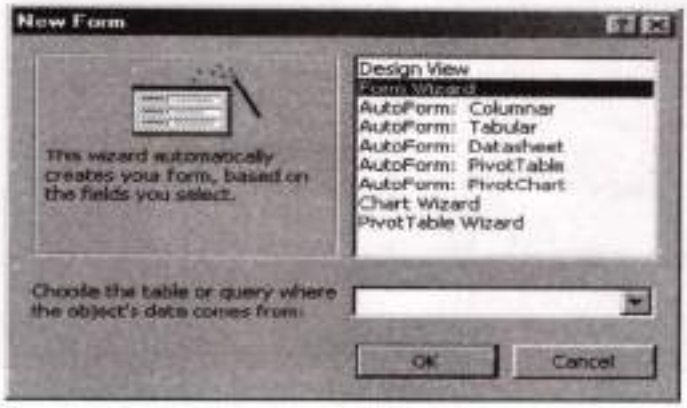
2.4.6 Forms: -Database tables are not interesting and attracting to look at; just they look like a spreadsheet. To make a database user-friendly, forms are created and displayed on the screen. Users then type data into these various forms and it is automatically entered into database. Once the data has been entered, the forms can also be used to view, edit, or delete the data. More than one form is created for the same database, providing users different views of the data. In other words, forms are designs that you create to improve the appearance of data from your tables. Even though the forms are used to display and print the data, the main purpose of forms is onscreen for improving and enhancing the interface for data entry. You can add graphics to them, and specify shading, colors, styles, and more and more. So you can use forms for a variety of purposes. The following are some of main purposes.

1. To create a data-entry form to enter data into a table.
2. To create a custom dialog box to accept user input and then carry out an action based on the input.
3. To create a switchboard form to open other forms or reports.

Creation: -The wizard asks you detailed questions about the record sources, fields, layout, and format you want and creates a form based on your answers.

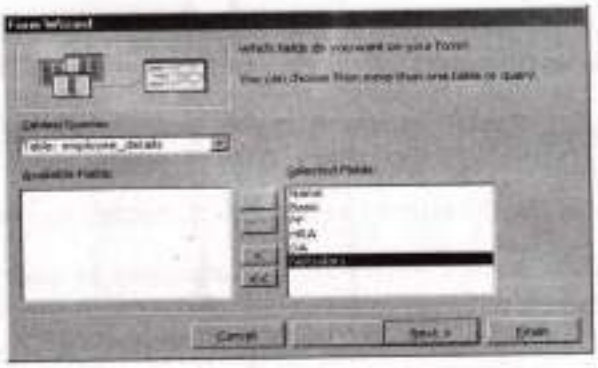
Create a form with the form wizard:

1. Open the appropriate database.
2. In the Database window, click **Forms** under **Objects.**
3. Click the **New** button on the Database window toolbar to display the **New Form** dialog box as shown in fig

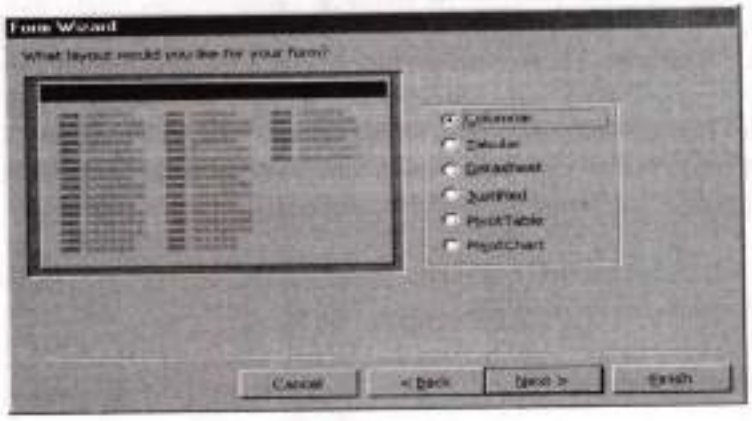


4. In the **New Form** dialog box, click the **Form wizard.** You can also use other wizards. A description of the wizard appears in the left side of the dialog box when you click them. Make sure

that you have chosen the correct table from the drop-down list. Click **OK** button the following window.

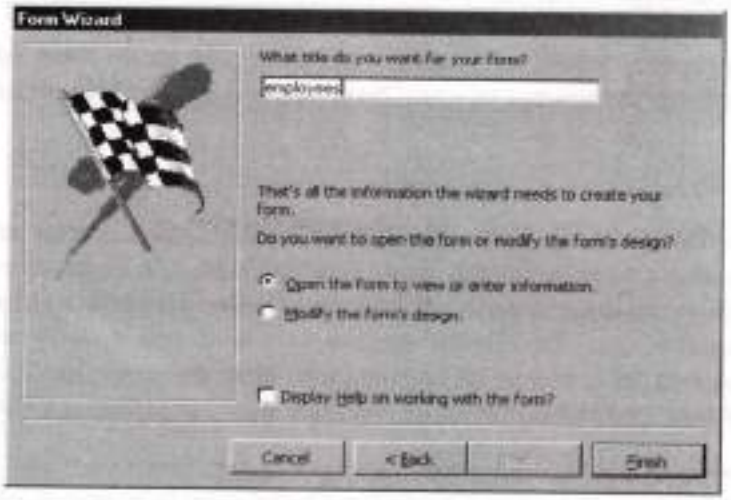


5. Select the fields to appear in your new form from your table as you did in table creation. Then click **Next** button to display the window as shown in Fig below.

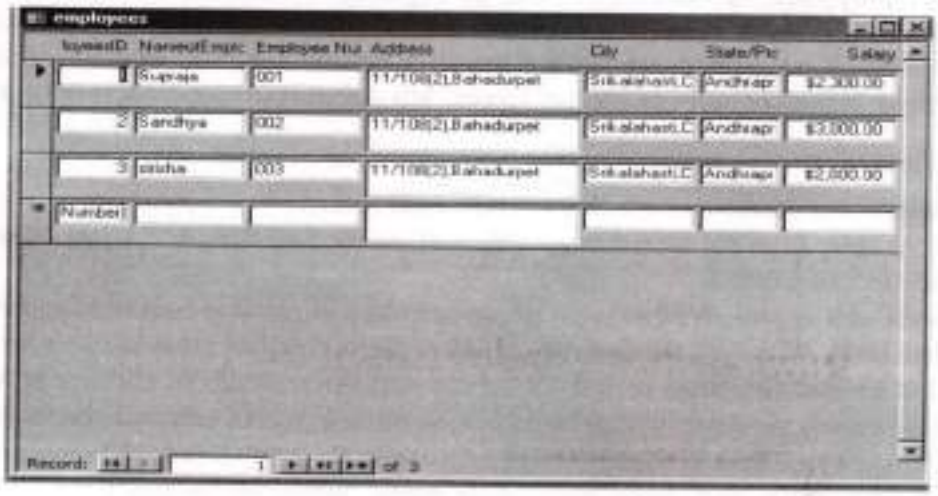


6. In Fig above, select a layout in which your form appears and click **Next** button to display the following window.

7. In the Fig above, select style you would like to have for your forms. Then click next button to display the following window.



8. The Fig above wizard gives you chance to modify the form. Here access asks for a title to your form. Enter the name (title) in the text box provided for and select open the form to view or enter information option and click finish button to display the form you want as shown in fig below.



If the resulting form does not look the way you want, you can change it in design view. If you click chart wizard, or pivot table wizard in step 4, you could follow the direction in the wizard dialog boxes. If you click auto form; columnar, auto form; tabular, or auto form; datasheet, Microsoft access would automatically create your form.

Open Form: -

Open the appropriate database.

In the Database window, click **Forms** under **Objects**.

Click the form you want to open.

Click the **Open** button to open the form in Form view, or the **Design** button to open the form in Design view.

You can also open a form in Form view by dragging the form from the Database window to the application background. Once you have opened a form, you can easily switch among the three views of the form by clicking the **View** button on the toolbar.

SAVING: It is a good practice to save new forms right after you create them and after you modify them. Use the **Save** button on the toolbar or click **Save As...** from the **File** menu to give the form a different name.

Modifications

Forms have three views: Design view, Form view, and Datasheet view. Forms are created in Design view. After you have created a form in Design view, you can view it in Form view or Datasheet view. Forms are divided into three sections: Header, Detail, and Footer. Headers and footers contain things like form title, page number, etc. The Detail section is where you specify which fields will be displayed, what they will look like, and so on and so forth. Here Item or control is a graphical object, such as a text box, check box, command button, or rectangle that you place on a form in Design view.

Enter and Edit - When compared to word and Excel; the view in access is adding new records to our table and editing information in the database. You can enter and edit text directly in tables in data sheet view. We can correct entries in fields with usual windows editing techniques. To add data to an existing text entry, click at the desired insertion point and begin typing. To replace a part of the text, select it and start typing, then the selected part will get replaced. We can use backspace or delete keys to delete character to the left or right of the insertion points. If we want to cancel our changes in the current field, press esc. If we want to cancel our changes in the entire record, press esc again before we move out of the field. When we move to another record, MS Access automatically saves our changes.

Adding records to a table: -

- Open the database and the table in which we want to add record.
- Choose the data entry from the record menu. We will see the following blank row. Now it is ready to accept a new record's fields.
- Enter data in the new record. We can press tab or enter key to move to next field and shift + tab to move back one field. When we are in the last field of the last record press tab or enter to move in the first field of another new blank record. Or we can start a new record by clicking anywhere in the row beneath the current record or we can also click on the new record button in the toolbar.
- Entries and edits get saved automatically when we move to the next record. To come out of our data entry, choose show all records from the records menu. When we do this the last record will automatically gets saved we need not save them separately using same command.

The following figures shows four record status icons and its meaning.

Record selector: - Click to select the entire record. Also can display the following symbols.

The current record; the record has been saved as it appears.

A new record that we can enter information in.

You are editing this record; changes aren't yet saved.

this record is locked by another user; you can't edit it (MS ACCESS data only).

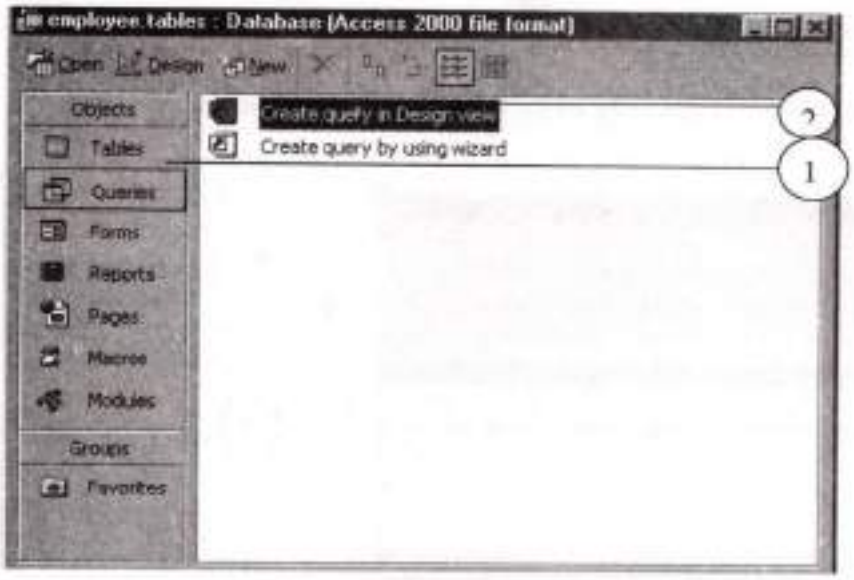
EDIT DATA: - Edit the data in a field in data sheet or from view.

- Open a data sheet or from in from view.
- To edit data with in a field, click in the field we want to edit. To replace the entire value, move the pointer to the left most part of the field until it changes into the plus pointer; and then click.
- Type the text we want to insert.

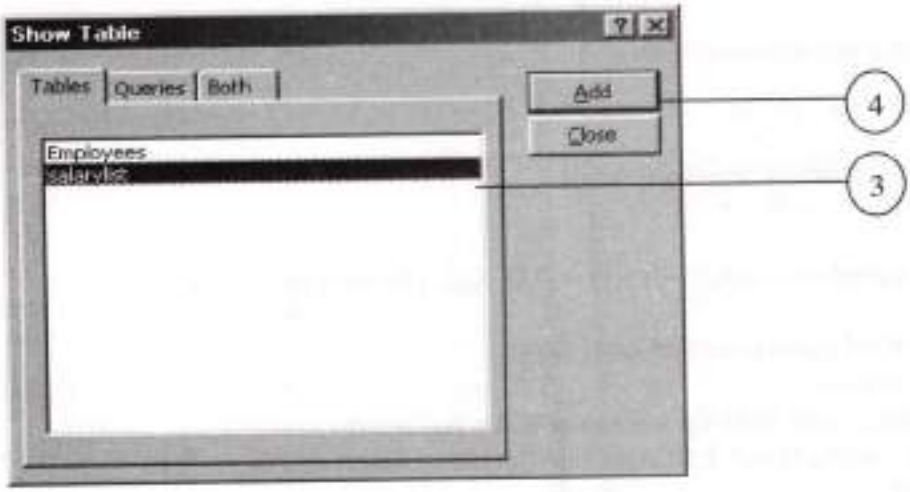
2.4.7 Query: -A query is a filter through which data is evaluated. We can define filter criteria in a query and only those records which meet these criteria are displayed. There are three types of queries:

(a) The most common type of query is a select query, which displays a sub set of the entire data, sorted, and selected using the criteria you specified.
(b) Action queries – These queries create new tables or delete, append and up data records in existing tables.
(c) Cross Tab Queries – These queries display spread sheets like cross tabular result forms.

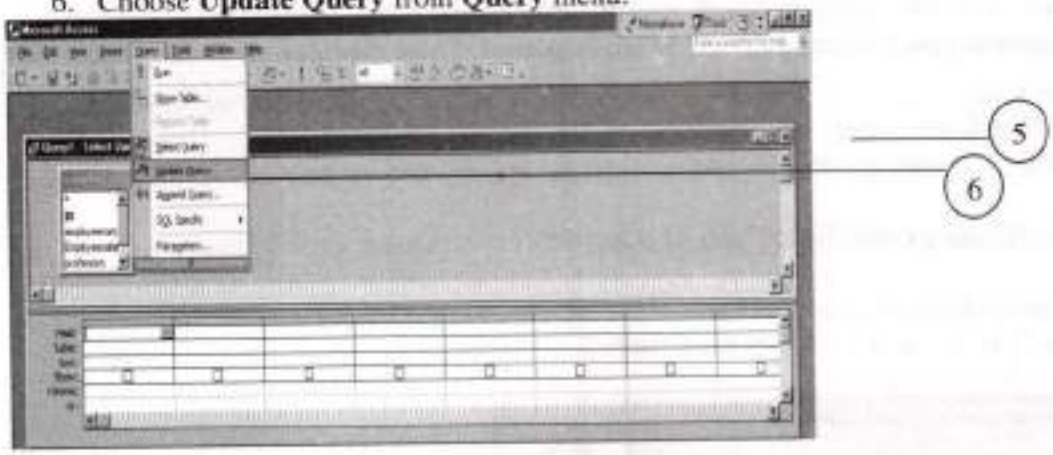
1. Click on **queries** tab from the short cut bar.
2. Double click on 'Create query in design view' option.



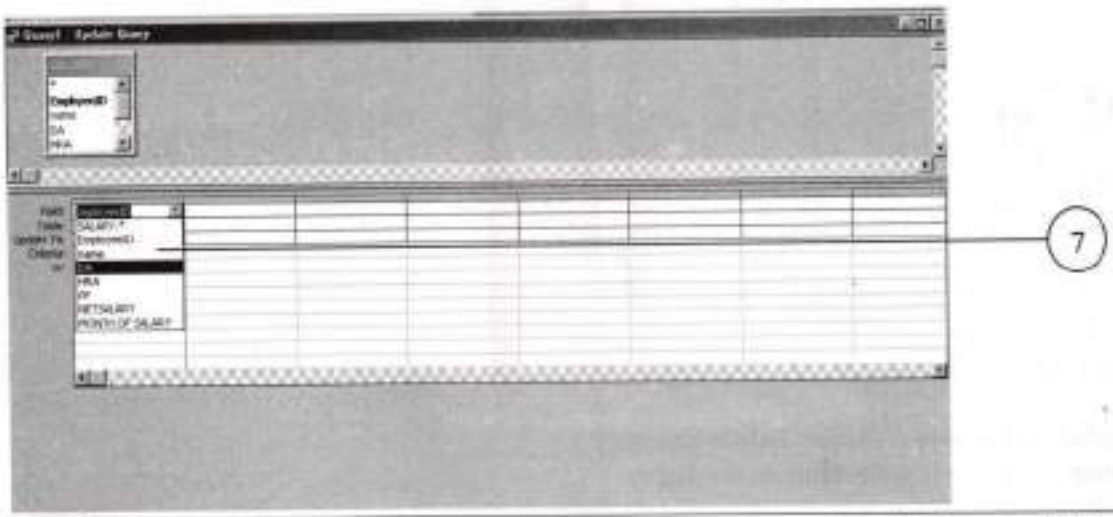
3. Click on **salarylist** option from the **Tables** category.
4. Click on **Add** button to add the table in the query.



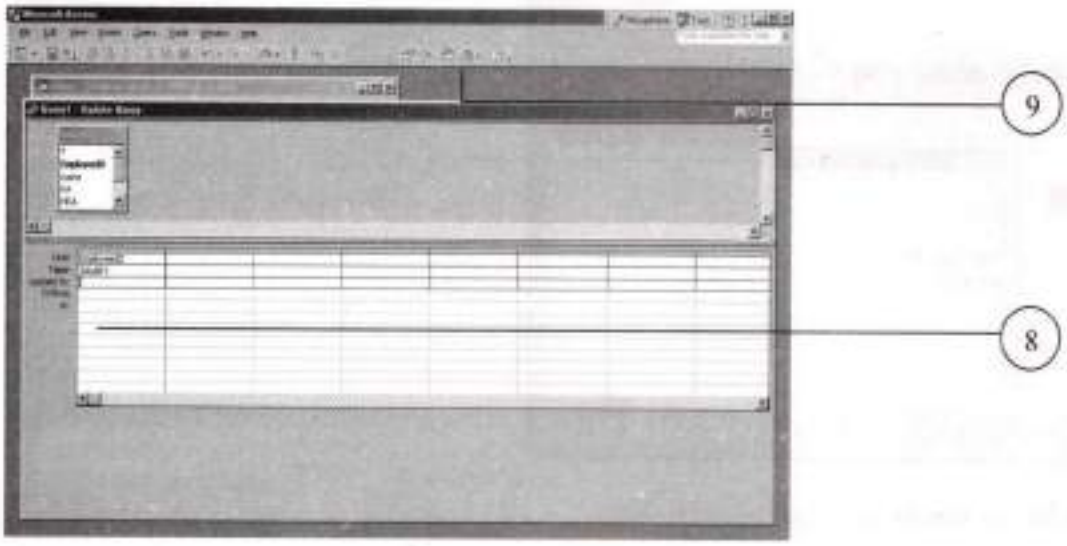
5. Click on **Close** button.
6. Choose **Update Query** from **Query** menu.



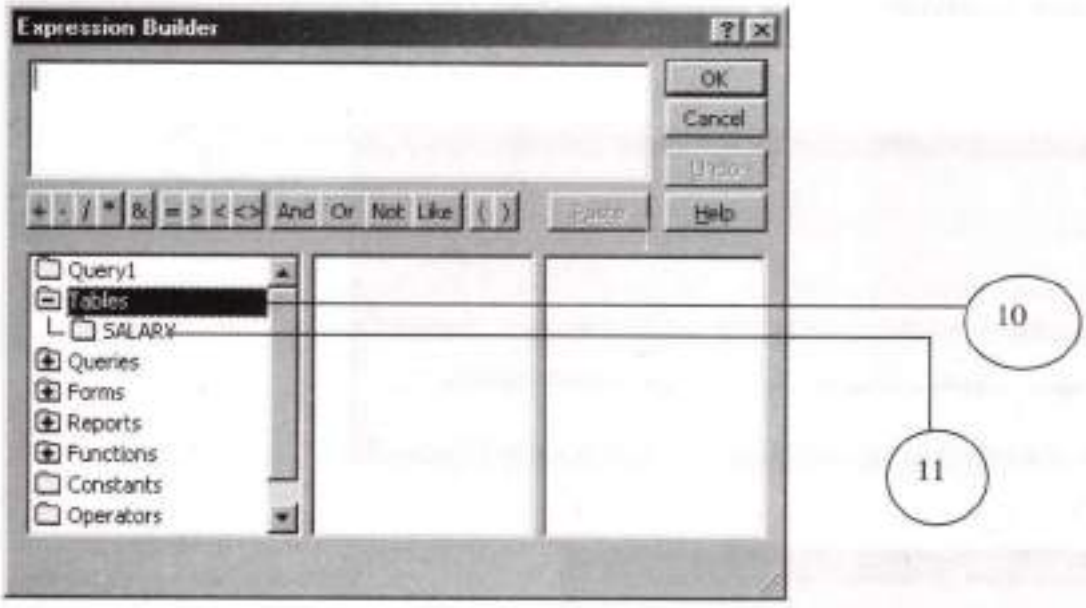
7. Now the thing to note here would be that, select only those fields that have particular criteria for calculating that particular field.



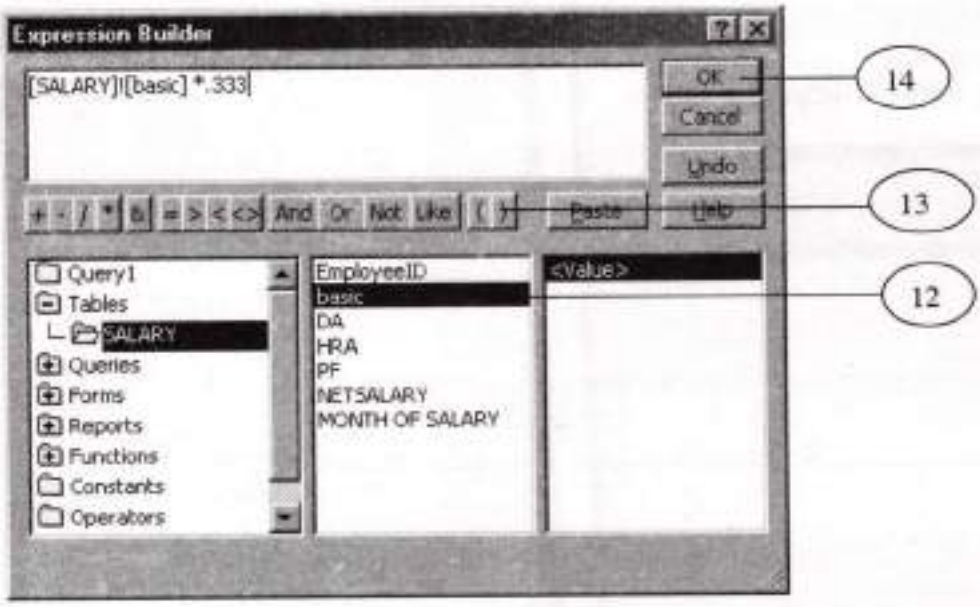
8. Click in the **Update to** column.
9. Click on the **build** icon from the formatting toolbar.



10. Double click on the **tables** option given here.
11. Click once on **salary** option given here.

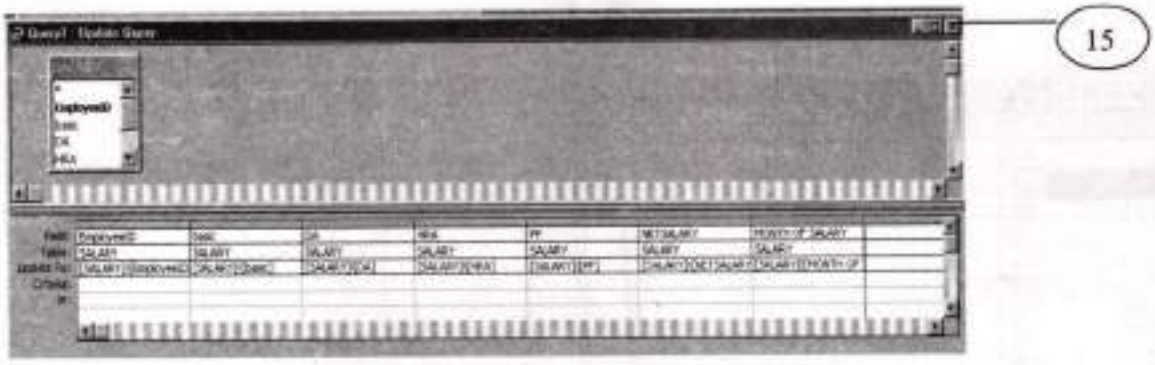


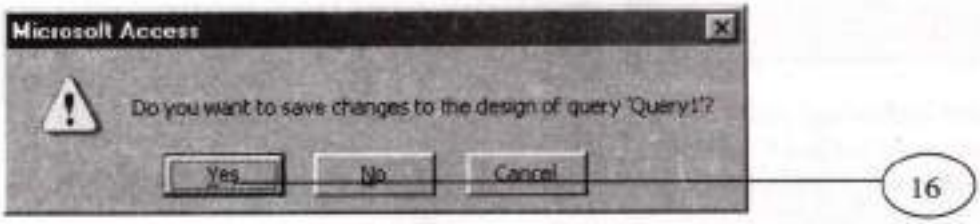
12. Double click on the **basic** option and you will see that it is shown in above.
13. Choose the function that you want from the function bar given here.
14. Click on ok button to continue.

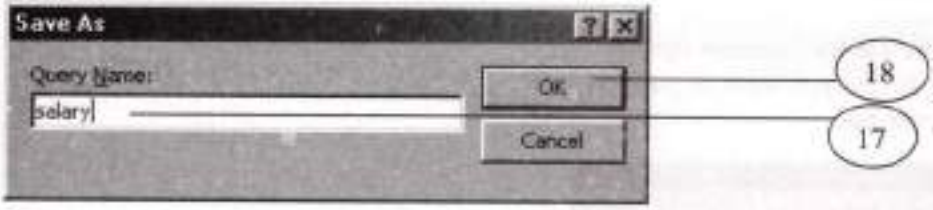


Fill up the formulas for the rest of the fields as given here.

15. Click on **close** button to close this query
16. Click on **yes** button to save this query
17. Give the name of the query that you have just created in the query name box.
18. Click on **ok** button to continue.



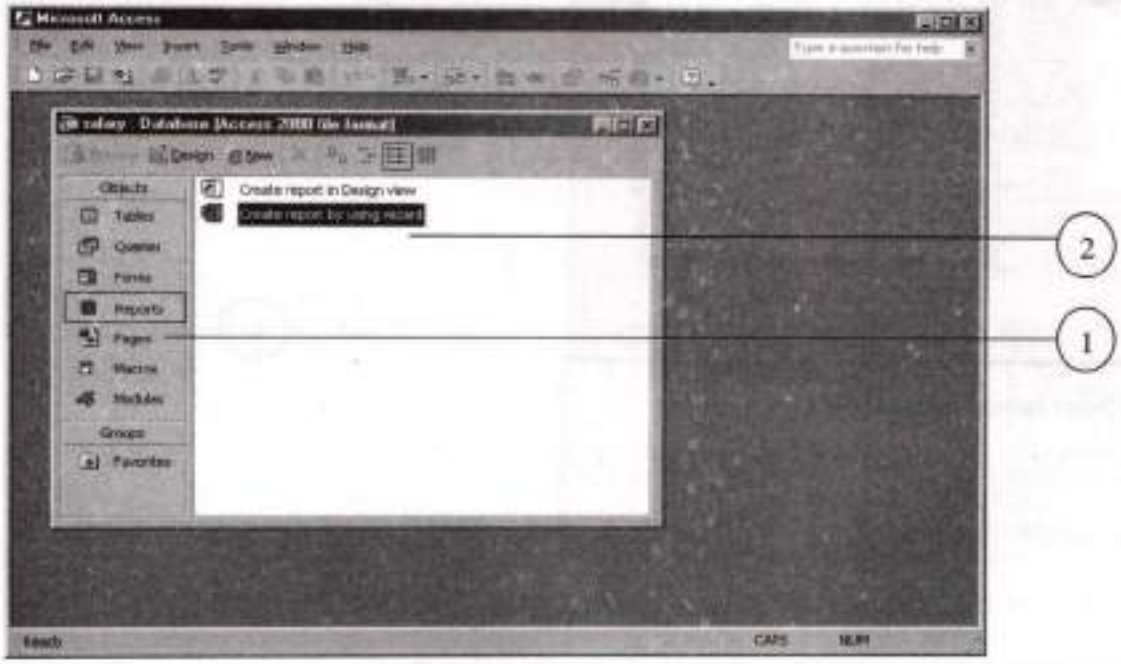




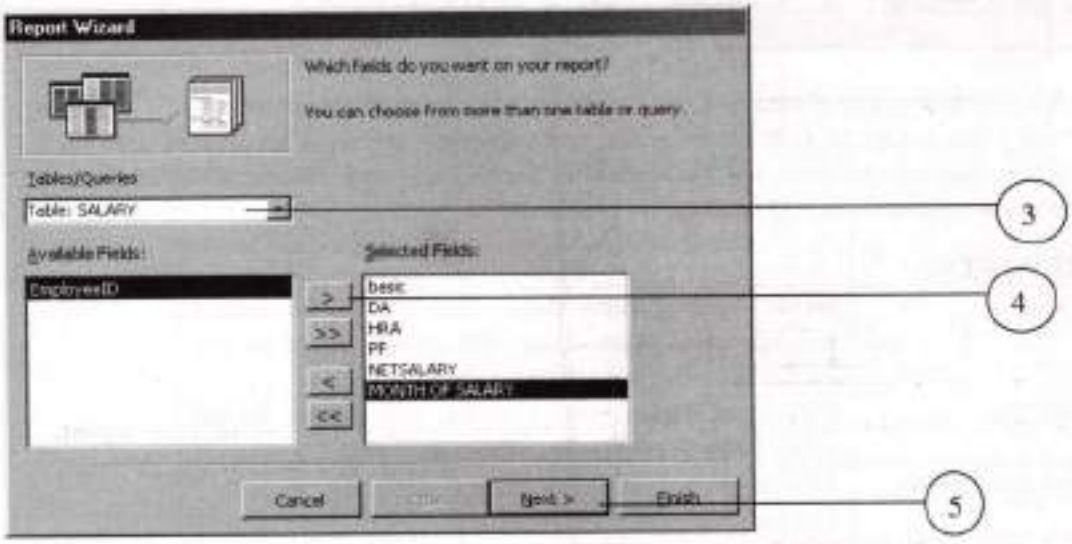
2.4.8 Reports: - A report summarizes data in a format suitable for publishing i.e. to view data on the screen or to print it on a printer or to publish it on the web. Reports are used to present data in a meaningful and attractive manner and here you can combine data, charts and images, even audio and video. There are six ways to create reports in access.

REPORTS	PURPOSE
Design view	Begins with a blank page. You lay out the report the way you want using the design tools in the toolbox.
Report wizard	Choice of fields, sort criteria, and report layout used. Creates tabular or columnar report.
Columnar auto report	One or more records displayed vertically. Selected form a single table or query.
Tabular auto report	Rows and columns groped by field values. Selected from a single table or query.
Chart wizard	Leads you through creation of a report containing a chart and associated data.
Label wizard	Helps you create mailing labels from data.

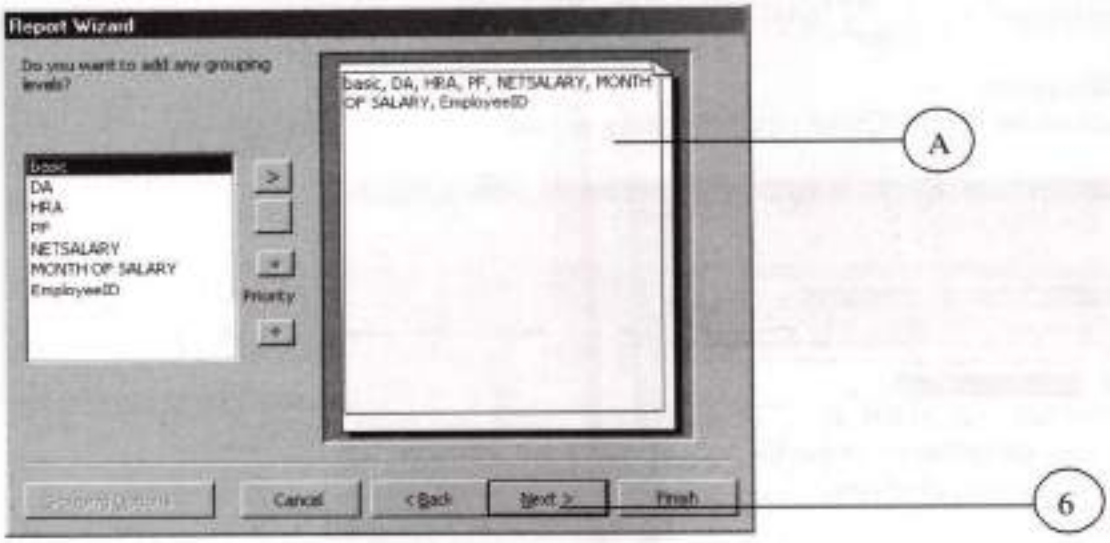
(1) Click on Reports tab.
(2) Double click on the option 'Create reports by using wizard'.



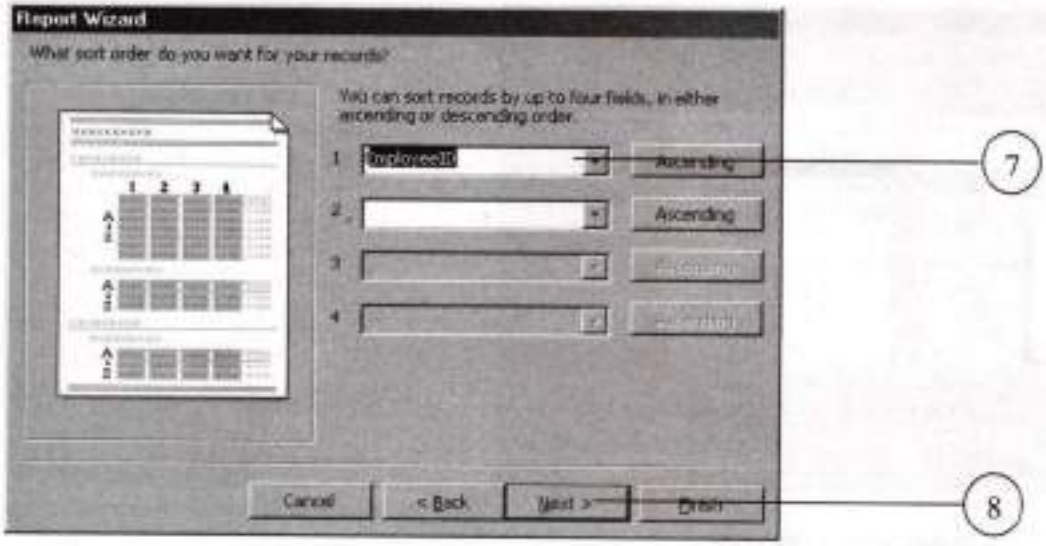
(3) Choose the Salary from the Tables / queries option.
(4) Click on this to select the fields you want in your report.
(5) Click on Next button to continue



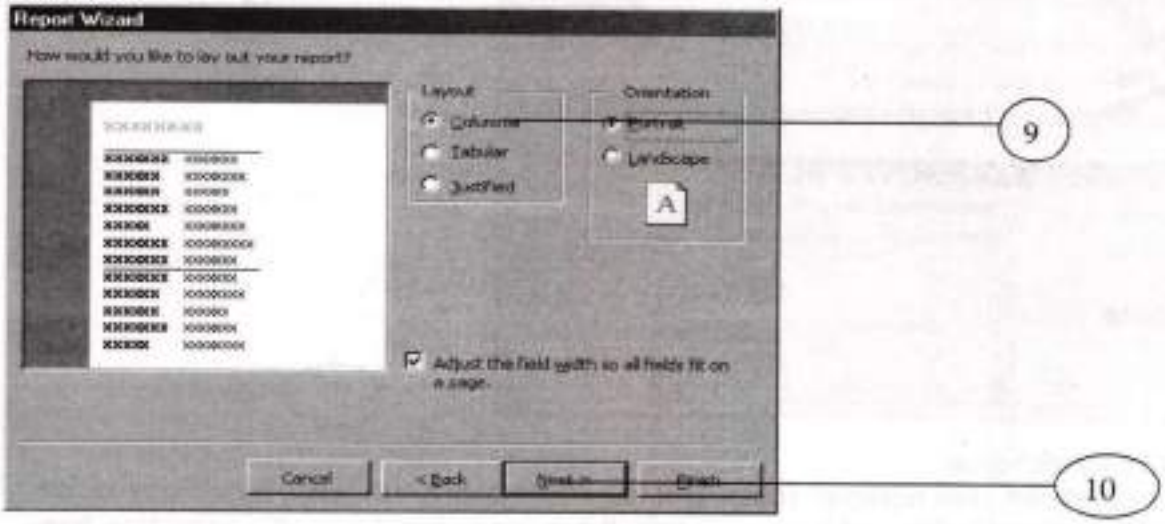
A) Specify the groping level if you want any by clicking on the fields and then clicking on'>' button.
(6) Click on Next button to continue.
(7) Click on the field on basis of which you want to sort



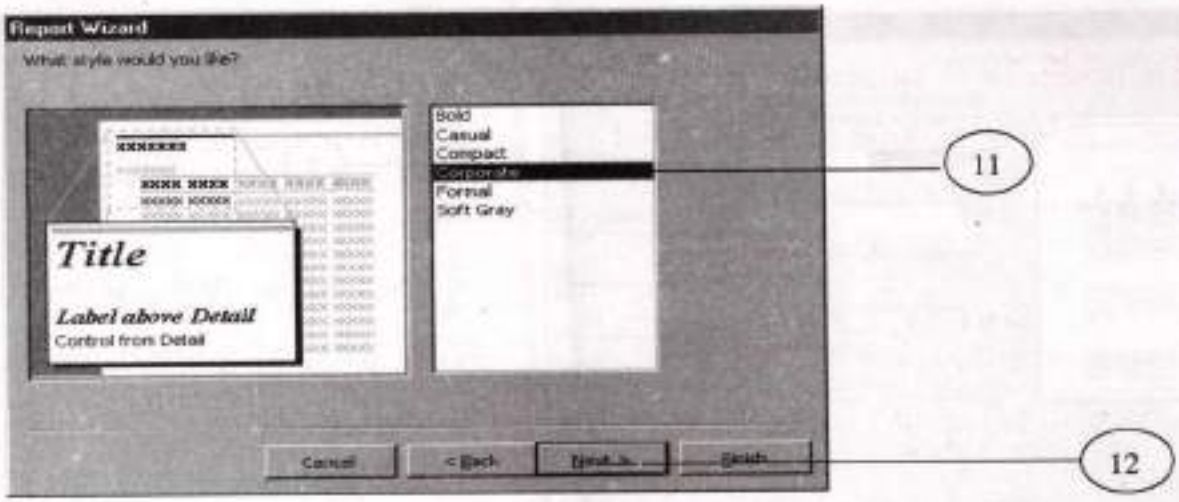
(8) Click on Next button to continue.



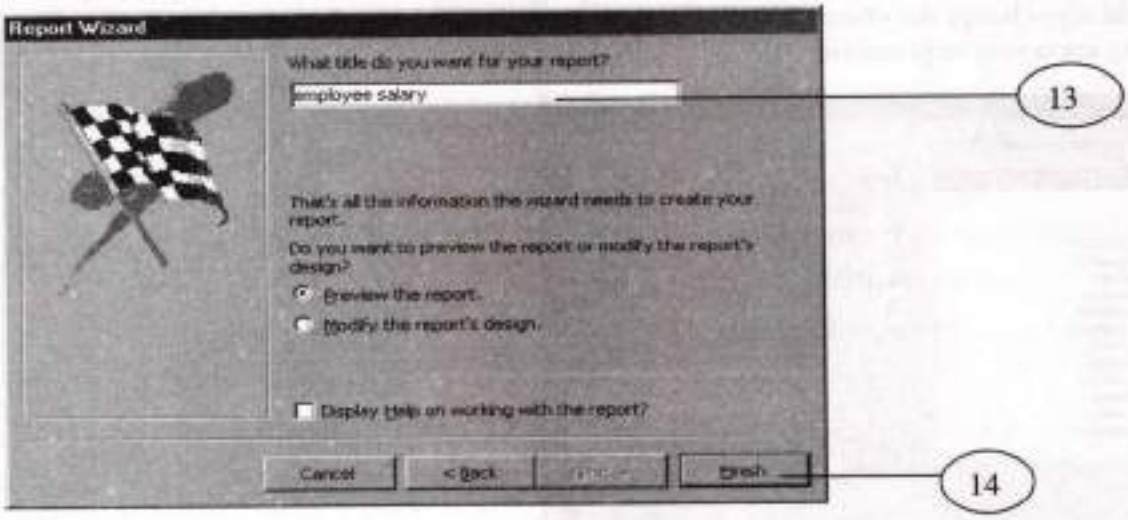
(9) Click on the columnar radio button from the layout option to choose the layout of your report. You could also change the orientation of your report by clicking on either portrait or landscape depending upon your requirement.



(10) Click on Next button to continue
(11) Click on Corporate option to choose the style of report that you want.
(12) Click on Next button to continue.

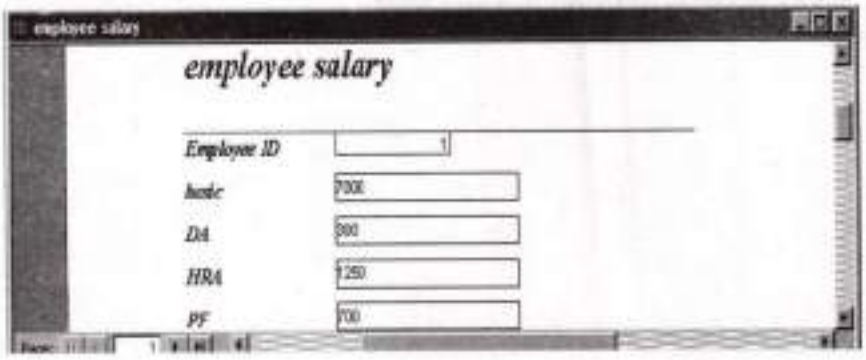


(13) Give the name of your report here.



(14) Click on Finish button

B) You can now see your report all ready. You can scroll through the report by clicking on the record buttons give bellow and by using the scroll box or you can also use the arrow keys from the key board to do so.



Printing tables forms & databases : -

Using the print command (available in table, form, and query views, and in the database window) you can print things. It is a quick process. You can add page numbers, and dates, and a title to the printing.

- Open the appropriate database and appropriate tables, forms or query.
- Make any necessary changes to be on screen lay out.
- Visit page setup and pickup the desired page size, orientation, and other available printing options.
- Use print preview to see how your printing looks.
- After finalizing all decisions, click the print button, or choose print from the file, menu or press Ctrl +P or print from file menu it displays the print dialog box so you can make any last-minute choices like number of copies, etc., and select ok.

Print a report: -

Before you print a report for the first time, you might want to check the margins, page orientation, and other page setup options.

- Select the report or form in the database window, or open the report in design view, print preview, or layout preview.
- On the file menu, click print.
- Enter the setting you want in the print dialog box.
    1. Under printer, specify a printer.
    2. Under print range, specify all pages or a range of pages.
    3. Under copies, specify the number of copies and whether they should be collated.
- Click ok.

To print a report with out bringing up the dialog box, click on the toolbar.

Internet Skills

Internet Skills

3.1 Introduction

A **computer network**, or simply a **network**, is a collection of computers and other hardware components interconnected by communication channels that allow sharing of resources and information.

Networks may be classified according to a wide variety of characteristics, such as the medium used to transport the data, communications protocol used, scale, topology, and organizational scope.

LAN - Local Area Network

A LAN connects network devices over a relatively short distance. A networked office building, school, or home usually contains a single LAN, though sometimes one building will contain a few small LANs (perhaps one per room), and occasionally a LAN will span a group of nearby buildings. In TCP/IP networking, a LAN is often but not always implemented as a single IP subnet.

In addition to operating in a limited space, LANs are also typically owned, controlled, and managed by a single person or organization. They also tend to use certain connectivity technologies, primarily Ethernet and Token Ring.

WAN - Wide Area Network

As the term implies, a WAN spans a large physical distance. The Internet is the largest WAN, spanning the Earth.

A WAN is a geographically-dispersed collection of LANs. A network device called a router connects LANs to a WAN. In IP networking, the router maintains both a LAN address and a WAN address.

A WAN differs from a LAN in several important ways. Most WANs (like the Internet) are not owned by any one organization but rather exist under collective or distributed ownership and management.

LAN, WAN and Home Networking

Residences typically employ one LAN and connect to the Internet WAN via an Internet Service Provider (ISP) using a broadband modem. The ISP provides a WAN IP address to the modem, and all of the computers on the home network use LAN (so-called *private*) IP addresses. All computers on the home LAN can communicate directly with each other but must go through a central gateway, typically a broadband router, to reach the ISP.

Other Types of Area Networks

While LAN and WAN are by far the most popular network types mentioned, you may also commonly see references to these others:

- **Wireless Local Area Network** - a LAN based on WiFi wireless network technology
- **Metropolitan Area Network** - a network spanning a physical area larger than a LAN but smaller than a WAN, such as a city. A MAN is typically owned an operated by a single entity such as a government body or large corporation.
- **Campus Area Network** - a network spanning multiple LANs but smaller than a MAN, such as on a university or local business campus.
- **Storage Area Network** - connects servers to data storage devices through a technology like Fibre Channel.
- **System Area Network** - links high-performance computers with high-speed connections in a cluster configuration. Also known as Cluster Area Network.

3.2 Internet

The Internet is a global system of interconnected governmental, academic, corporate, public, and private computer networks. It is based on the networking technologies of the Internet Protocol Suite. It is the successor of the Advanced Research Projects Agency Network (ARPANET) developed by DARPA of the United States Department of Defense. The Internet is also the communications backbone underlying the World Wide Web (WWW).

What is a Network Protocol?

Network protocols defines a language of rules and conventions for communication between network devices.

Internet Protocols

Protocol: Is a formal definition of a language that two computers use to communicate. This definition describes acceptable messages and outlines the rules that two computers must follow to exchange those messages.

The Internet Protocol family contains a set of related (and among the most widely used network protocols. Besides Internet Protocol (IP) itself, higher-level protocols like TCP, UDP, HTTP, and FTP all integrate with IP to provide additional capabilities. Similarly, lower-level Internet Protocols like ARP and ICMP also co-exist with IP. These higher level protocols interact more closely with applications like Web browsers while lower-level protocols interact with network adapters and other computer hardware.

Transmission Control Protocol: Is the major transport protocol in the Internet Protocol suite. It provides reliable communication between two computers in the network.

Internet protocol: It is the network protocol in the Internet. IP provides a best effort to deliver an IP packet between two networks on the Internet.

Routing Protocols

Routing protocols are special-purpose protocols designed specifically for use by network routers on the Internet. Common routing protocols include EIGRP, OSPF and BGP.

The Internet, often referred to as 'the Net', consists of a complex network of computers connected by a high-speed communications system.

It allows easy access to a vast amount of information stored at many different sites around the world. No one 'owns' or controls the Internet, and each organisation, company or government is responsible for maintaining its own part of the network.

The Internet is used mainly for Communication; Finding Information; Publishing; Commerce; and for On-line Learning.

The most widely used facilities on the Internet are:

The World Wide Web (WWW)

Electronic Mail (e-mail)

Newsgroups

Chat

Publishing

3.3 How can I get connected at home?

To get connected at home the minimum you will need is:

1. An Internet Compatible Computer
   Most recent computers have this capability.
2. A Modem

Computers which don't already have an Internal Modem can be connected with an External Modem with one cable plugged into your computer and another into a telephone socket.

3. A Telephone Line
4. **An Internet Service Provider (ISP)**
   An ISP is a company which provides you with access to the Internet. This can easily be arranged through a telephone company, such as BSNL, or you can choose from many others. You can normally choose to pay for the duration of your connection to the Internet, or opt for a monthly payment which gives you unlimited access at any time.
5. **Internet Software**
   The special Browser and E-mail software which allows your computer to connect to the internet should already be on your computer. Most Internet Service Providers also include this free of charge with your subscription.

Note: It's best to keep this software up-to-date to enable you to have the best browsing experience and to minimise security risks.

Yes, one which is becoming more popular is Broadband, which is more costly but provides a much faster connection speed.

You may also have access to a Cable connection. Then there is ISDN and Satellite, both of which are expensive. All these other methods require additional special equipment which your provider will advise you upon.

Connection through the Mobile Phone Network is also possible and other options will become available as technology progresses.

3.4 Web Site

A **Web Site** may contain from just one to an unlimited number of inter-connecting pages.
Most pages have links (hyperlinks) to help you find your way around (navigate) the web site.

Links are often images or highlighted or underlined words(hypertext). When you move the mouse pointer over a link it will change to a pointing hand and when you click your mouse button your computer will be sent a fresh page to display.

You can find all kinds of information on the Web, e.g. the weather forecast, train timetables, a holiday destination, a favourite TV programme or football team, or advice about housing, benefits, or health matters. You can also shop, buy an airline ticket, pay a bill, or report an out of action streetlamp to your council - the list is endless!

There are millions of Web sites available on the Internet, you are sure to find something that interests you.

Every Web site has its own unique address, called a URL (Uniform Resource Locator). If you want to visit a site, you need to type in its address, in the address bar of your browser as shown.

Address http://www.logintolearn.com

Each URL is divided into the following sections:
For example: http://www.bbc.co.in

http:// – is short for hypertext transfer protocol and means that the file is a Web page. You do not need to type this part in as it will be automatically inserted by your browser it.
www – denotes the World Wide Web
bbc – indicates the company name
.co – shows the type of organization (company).
.in – states the location of the organization ('in' stands for India.).

The organization and location of the address of the organization is known as the domain name.

3.5 Web Browser

A Web browser is a software program that allows you to view, navigate and interact with the World Wide Web.

One of the most commonly used web browsers is Microsoft Internet Explorer but there are several others, including those for the visually impaired. For eg: Google Chrome, Mozilla firefox, Opera , etc.

Opening your Browser

Double-click on the Internet Explorer shortcut icon on your desktop. The program will launch and a browser window will open.

To be able to navigate around the multitude of web sites available on the World Wide Web, each web site has its own unique address, called a URL (Uniform Resource Locator).

Most web sites have links to help you view information and find your way around, or navigate. These 'hyperlinks', may connect to related topics within a web site, or to different web sites.

A Text Link (hypertext) may appear as an underlined word or phrase, or be in a different colour to the rest of the text.

A Graphic Link may appear as a button, or some other image.

The World Wide Web is an ideal resource for finding information on any topic. There are two basic tools you can use to help you find information, **Search Engines** and **Search Directories**.

3.6 Search Engines

A Search Engine consists of a vast index of web addresses, which is created and regularly updated by a computer program known as a robot, spider or crawler.

When you enter a word (keyword) or phrase in the search bar, the search engine will look through its database of web sites and provide you with a list of sites, or 'hits' that contain the keyword(s), together with a brief summary of each site.

There are many different Search Engines available on the Web. Each has its own database, search capabilities and methods of displaying results.

Some popular Search Engines include:

Alta Vista	**www.altavista.com**
Excite	**www.excite.com**
Google	**www.google.com**
Alltheweb	**www.alltheweb.com**
Ixquick	**www.ixquick.com**

Saving useful web pages to your computer can often be advantageous, including being able to view them later without having to be connected to the internet.
You can save them either as complete web pages, or as text files as shown in the following Activities:

Saving a Web Page

You are now going to locate a Web page containing information about Computer Viruses, then you will save it.

Open your browser application.

Enter the URL of a Search Engine of your choice into the address bar and press the Return key.

Key the following into its Search bar:
computers + viruses

From the results which your Search Engine has found, browse through the links until you find a suitable page that you would like to save.

With the page displayed, open your browser's **File Menu** and select **Save As...** to open the **Save Web Page** dialogue box.

With the **Save Web Page** dialogue box now displayed, do the following:

- Select **Save in:** to choose the Location, where you wish your file to be stored. • Key in a **File Name**, or use the default. • Select **Save as type:** Web Page Complete (*.htm *.html) • Click **Save** Exit your Web Browser application. File Type **Save as...** options explained: **Web Page, complete (*.html)** - Saves files separately. **Web Archive, single file (*.mht)** - Combines all files. **Web Page, HTML (*.html)** - Saves only the HTML. **Text File (*.txt)** - Saves only the text of the page. When printing a web page, you can choose to print a few lines; one or more pages; a single frame; or even a list of links from your selected page.

Printing a Web Page

In this Activity, you are going to print a 'hard copy' of a crossword from the Web site of The Herald newpaper.

Open your browser application.

Enter **www.theherald.co.uk** into the address bar.
Or from the **Logintolearn** site follow: **Useful Links > Current Affairs > National Newspapers > The Herald**

On The Herald's home page, click on the link **Crosswords**.

On the page which appears, click on the **Printable** link. (Note: The 'Interactive' alternative)

With the Crossword displayed on your screen, Press the **Print** icon on the browser Toolbar.

When you are ready, close the site and exit your browser.

You can also use a Search Engine to search for pictures or images.

Searching for Pictures using Google

In this Activity, you are going to search for pictures of Tajmahal and from the musical 'Cats'. You will receive fewer, but more accurate 'hits' by using a phrased search.

Open your browser application.

Enter **www.google.com** into the address bar.

Select the **Images** tab.

Enter the following phrase into the search bar and press **Google Search**.
"Tajmahal"

In the Results window, you can click on an image to enlarge it and to display further details.

Searching for Pictures using Google

Return to the Search Bar, Delete the previous entry and key in the following:
"cats" + musical

In the Results window, Click on an image to enlarge it and to obtain the image details.

Now try conducting an image search of your own: a favourite football team; musical; film star or pop group perhaps - the choice is endless!

When you are ready, exit your browser.

Now that you are familiar with using a Web Browser and searching for information, the following Activities will introduce you to some of the other features made possible by the World Wide Web.

These include: Sending or receiving information by using On-line or Interactive forms; On-line Shopping and On-line Learning.

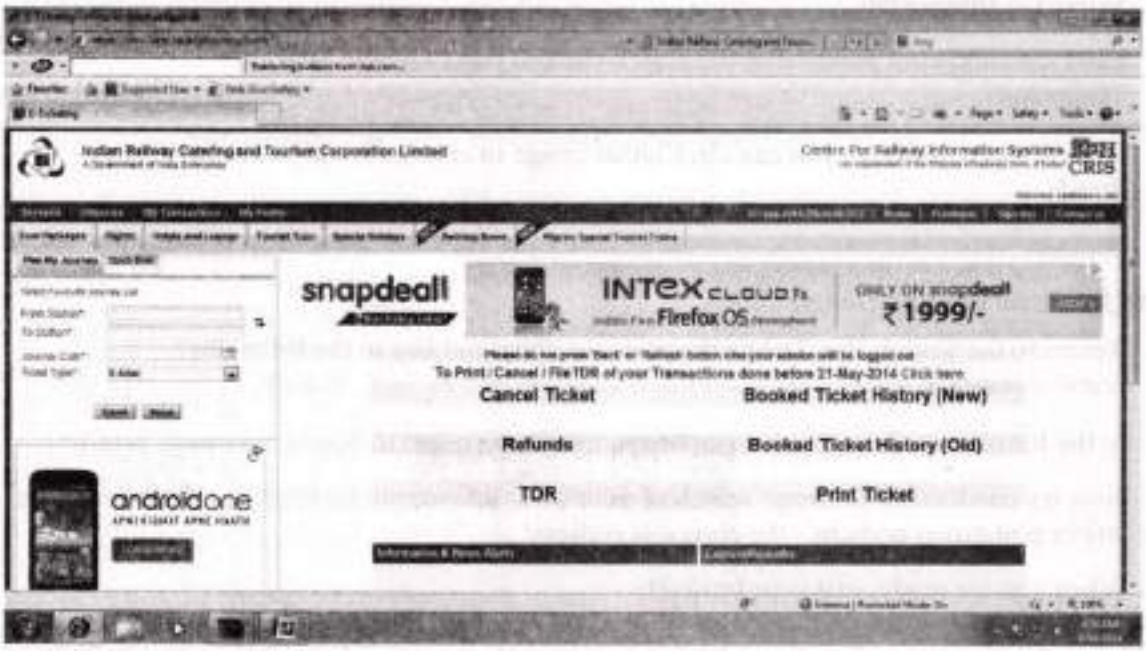
3.7 On-line Forms: Rail Journey

A number of Web sites allow you to request or provide specific information by using on-line interactive forms. To avoid standing and long queues Indian railways has launched WWW.IRCTC.CO.IN website for reserving train tickets.

Registration/Sign-up process is quite simple and straight forward. Just follow the simple illustrated instructions below. It only takes a few minutes for the complete procedure.

- Go to www.IRCTC.co.in and click on the Signup link sported in the login page.
- Fill in the mandatory details such as your Residence Address, Phone Number, Country, Personal details and choose your desired subscriptions and specials offers for mailing list. After completing the IRCTC registration form as depicted in the image above, Hit the **Submit** button.

- You need to verify the authenticity of your e-mail address, by clicking on the confirmation link sent to your e-mail account inbox.
- After verification, you can login or sign in to your IRCTC account and go ahead with ticket booking and reservation procedure.
- You have to IRCTC sign in to your account using your Username and Password and the following screen appears.



- You will be directed to the **Plan my Travel** page.
- You have to enter the **From** station and **To** (Destination) station, the date of journey, Ticket type (E-Ticket or I-Ticket) and Quota Type-General reservation or Tatkal reservation.
- A new page will be displayed, where you need to enter the details of passengers such as Name, Sex, Age, Berth preference.
- You will be directed to the IRCTC payment Gateway, where payment can be made. Once the payment is done, the reservation ticket will be displayed.
- You can check your ticket through Booking history in the IRCTC login page.
- You can take a printout of the ticket to verify your reservation, Alternatively you can show the SMS message received on your mobile.

3.8 Online Shopping using Flipkart

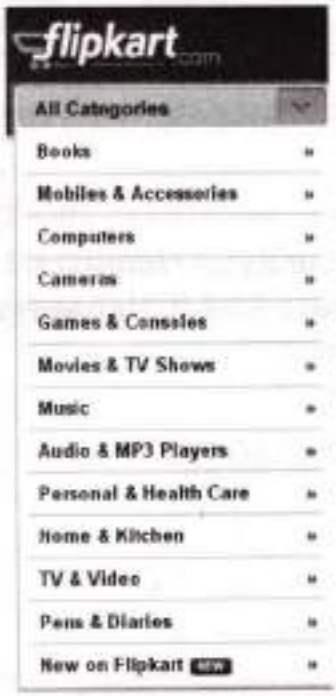
How to do a successful online purchase at Flipkart

Flipkart is one of India's popular online shopping stores and it is commonly known as the Amazon of India, the world's largest online shopping store. If you feel that doing a successful online purchase is a cumbersome process, then you are absolutely wrong. An online purchase requires you to follow some simple steps to make it successful. So, here in the following section of this article, I will walk you through the procedural steps to be followed for making a successful online purchase at Flipkart.

Steps to follow for doing an online purchase at Flipkart
The First set of steps involve Searching and adding items in your shopping cart

1) As usual, login to Flipkart.com.

2) On the top left hand side of the Flipkart page, you can see a sidebar of various categories. Select the category under which the item that you are going to purchase falls. For example, if you want to buy a Nikon camera, then select the category **Cameras** and then the sub-category Nikon under Brands.



3) Now, from the items list thus displayed, if you find the item which you want to buy then click on that respective item. In case, if the item which you want to buy is not displayed in the list, use the Search box to type the exact name of the item and then select the item you want to buy from the search list of items thus displayed.

4) You will now have the item that you want to purchase displayed on the Flipkart page. Let's start buying.

5) Now, click on the Orange button that says **buy This Now**.

6) Clicking on the Buy This Now button displays a **Shopping Cart window** on your screens. The Cart displays the item you have ordered, the price of the item, the

quantity and the sub-total.

7) Now, if you want to order more quantities of the same item, then under the Quantity column in your Cart, click on **change** and then enter the quantity you require in the box and then click on **Save**.

In case, if you want to buy another item along with the item you already added in your Shopping cart, then click on the button that says **Close and Continue Shopping** displayed at the bottom-left of your shopping cart window. After this, continue shopping as usual by searching for the item which you want to add and then click on Buy This Now button displayed under that item. See the above snapshot for details.

8. Now, you should see the second item added in your shopping cart.

Once you have finished shopping, verify whether everything is correctly displayed inside your shopping cart. If you find it correct, then click on the **Place Order** button.

The second set of steps involve selecting payment mode and placing order

1) Clicking on **Place Order** button will direct you to the **Secure Payment** page where you are suppose to enter your E-mail Address, Shipping address where you want the items to be delivered and the mode of payment.

2) Firstly, you should enter a valid E-mail address. In case, if you have an account at Flipkart, then select the checkbox that says **I have a Flipkart account and password**. Selecting the above checkbox will prompt you to enter your account password. Enter the correct password. After entering your E-mail address and your Flipkart account password, click on the Continue button.

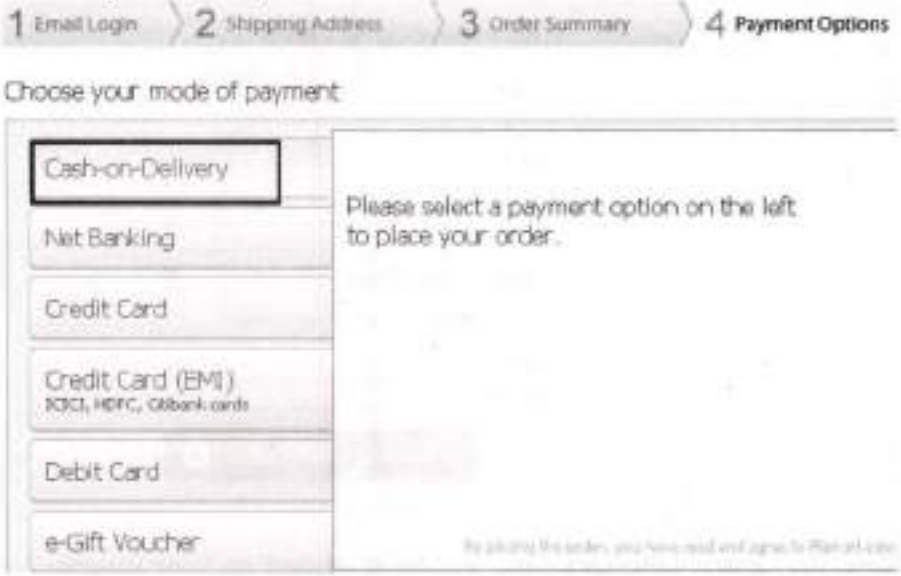
3) In the next step, enter your **Shipping address**. Ensure that you enter this address correctly. After entering the address, click on the **Save and Continue button.**
After entering the address, click on the **Save and Continue** button.

4) Now, the **Order summary** page will be displayed on your screens. Verify whether everything is according to what you have ordered. In case, if you want to gift wrap this item (not applicable for all items you buy), then in the order summary page, select the check box that says Gift wrap this order and then in the small window thus opened, enter your personal message for whom you want to send this gift and then click on **Save**. Once done, click on the **Continue** button.

NOTE: - if the orders you have placed does not amount to a minimum of Rs 200, then an extra amount of Rs 30 will be charged as Shipment fees. For instance, if you order amounts to Rs 180, then the total amount payable will be Rs 210. So, at any case, just ensure that your order amounts to a minimum of Rs 200 so that you can avoid the shipment fees. Gift pack costs you Rs 30 extra.

5) In the next step, you are supposed to select the mode of payment. Select the mode of payment which you want. The modes of payment are displayed on the left sidebar of the Payment options page. For instance, select **Cash-on-Delivery** (not applicable if

you have placed the order as a Gift) if you want to pay the cash on getting your item delivered at your doorstep.



Once you finish selecting the mode of payment, you will be asked to enter a Captcha in order to verify your order. Type the Captcha and click on the **Place Order** button.

This completes the placement of your order on the Flipkart shopping store.

The Third set of steps involve tracking your order and waiting for its arrival

1) Clicking on the **Place Order** button will direct you to a page which confirms the successful placement of your order. You will be provided with a tracking id and a URL where you can use this tracking id to track your shipment on a daily basis. The

tracking id will also be sent to the mail address you specified while placing the order.

2) The time taken for the product to be delivered would have been clearly mentioned on the respective item page while you placed the order. However, most of the products will have a minimum delivery time between 2 to 4 days.
Since I am a regular buyer from Flipkart, I would like to give you a blueprint of how exactly the order will be delivered at your doorstep.
After placing your order successfully, the item will be first shipped to the Flipkart Warehouse situated at Delhi. From Delhi, it will be shipped to the Flipkart branch located near to your location and from there it will be shipped to your doorstep. Once the item has reached to the Flipkart branch near your location, you will get a call from the Customer care of Flipkart to confirm your order. After you confirm the order, the item will be out for delivery. When the order is out for delivery, the Flipkart delivery boy may contact you to find your exact address. Specify the address correctly and have your product delivered successfully.

3.9 Using Electronic Mail (E-mail)

This section will introduce you to E-mail, one of the most widely used facilities of the Internet, and guide you through composing, sending and receiving mail.

You will learn how to set-up your own e-mail account using the popular web-based e-mail provider Yahoo. This will enable you to use e-mail on any computer with Internet access.

Information will also be provided on Microsoft Outlook Express, which is widely used by those who have access to a computer at home.

Electronic mail, or E-mail as it is more widely known, is a method of sending messages from one computer to another.

It has revolutionised communication in workplaces and homes throughout the world, enabling individuals, organisations and businesses to send messages to any recipient's E-mail Address.

What are the advantages of e-mail?

- It's fast - Messages can be sent anywhere instantly.
- It's cheap - Transmission can cost nothing or very little.
- It's simple - Easy to use, after initial set-up.
- It's efficient - Sending to a group can be done in one action.
- It's versatile - Pictures or other files can be sent too.

Are there any disadvantages?

The very convenience of e-mail can make it easy for unscrupulous businesses to send you unsolicited messages (commonly known as 'Spam'). It's the electronic equivalent of the 'junk mail' you receive through your letterbox, except in this case it may also contain messages which are offensive or distasteful to some.

Spam is best avoided, by revealing your e-mail address only to carefully chosen recipients. And never respond to any of it, as the unscrupulous businesses will just take it as confirmation that your e-mail address is 'live' and likely subject you to even more!

Virus Alert and Tips to Avoid Infection

Computer viruses are frequently and rapidly spread by users unwittingly opening infected e-mail attachments. A malicious program may then send the rogue attachment to every address in your e-mail program's address book and so on.

Always be Vigilant

To avoid contamination do not open attachments unless you are expecting them and they come from a recognised sender. Always ensure you use anti-virus software that is updated on a regular basis to help minimise the risk of contamination.

Web-based e-mail requires you to be connected to the Internet whilst managing your mail, as well as for sending or receiving.

The advantages include: being free to set-up; and being able to access your emails from any computer in the world that is connected to the Internet - whether it's from a friend's house; an Internet Café; an airport; hotel, or public library.

There are many web-based e-mail providers including:

Yahoo	**www.yahoo.com**
gMail	**www.mail.google.com**
rediff	**www.rediff.com**

Creating a GMAIL Account

Before you start your employment searches you may want to load some free tools onto your computer.

Get a Free Gmail Account

Go to Google and create a Gmail account. These accounts will really be helpful to you for your job or career search.

They have great built in Spam protection.

GMAIL Sign up Form

Click to Sign up for Gmail. You will need a secondary email to complete your application.

Filling in the Gmail Registration Form

Your Google Account gives you access to Gmail and other Google services. If you already have a Google Account, you can sign in here.

Get started with Gmail

First name: John (1)

Last name: Seeker (2)

Desired Login Name: johnseeker (3) @gmail.com

Examples: JSmith, John.Smith

check availability (4) Check Availability

johnseeker is not available, but the following usernames are:

- johnskr3
- jsjohnseeker54
- jhnskr
- john.seeker371

Choose a password: Password strength:

Minimum of 8 characters in length

Re-enter password:

Remember me on this computer.

You may have to keep choosing a username or email address until you find one that is available.

Choose your Gmail Password

Choose a password: ******** (1) Password strength: Strong

Minimum of 8 characters in length

Re-enter password: ******** (2)

Retype your password in

Remember me on this computer.

Creating a Google Account will enable Web History. Web History is a feature that will provide you with a more personalized experience on Google that includes more relevant search results and recommendations. Learn More

Enable Web History.

Security Question: Choose a question ... (3)

Choose a question ...
What is your primary frequent flyer number
What is your library card number
What was your first phone number
What was your first teacher's name
Write my own question

Answer: (4)

Secondary email: (5)

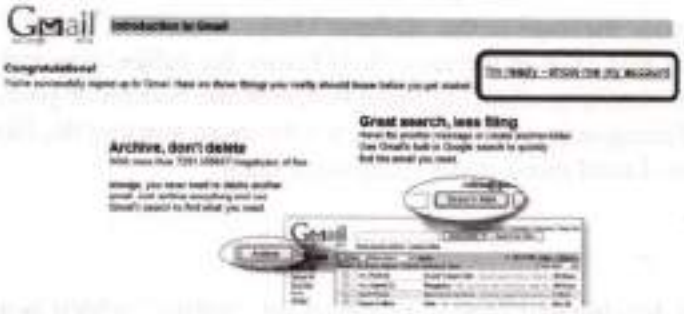
This address is used to authenticate your account should you ever encounter problems or forget your password. If you do not have another email address, you may leave this field blank. Learn More

1. Choose a password, while watching the password strength to make sure your account stays secure.
2. Re-enter your password.
3. Choose a Security question. This is used in case you forget your password and need it reset. Write this down.
4. Put your Security question answer here. Write it down.
5. Here is where you put your secondary email. This is an email that Gmail can mail your password incase you forgot your password.

The completed Gmail Form

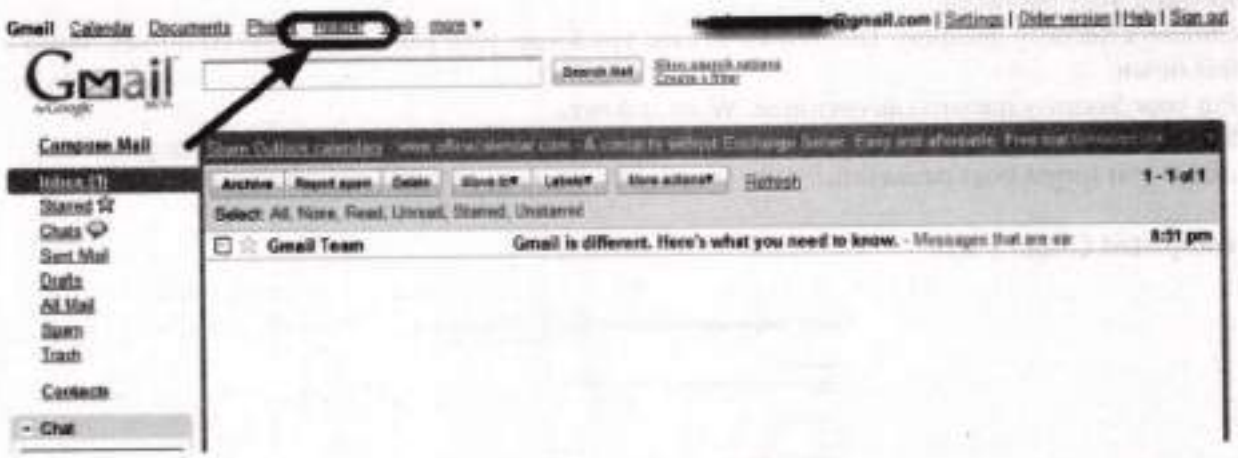
This is the Gmail application form completed. You then click the "I accept. Create my account" button.

Welcome to Gmail



After reviewing the screen and some of the valuable tools you receive with Gmail, you would then click that you are ready.

The Gmail Dashboard



For now we are done with creating google account. Now you can easily sign in with your newly created gmail account and password and can experience sending and receiving emails.

Sending mails:

1. Click the **Compose** button on the left side of your Gmail page.
2. Type your recipient's email address in the "To" field.
   - As you type a recipient's address, Gmail will suggest addresses from your Contacts list using auto-complete.
   - Once you've entered a contact in the "To" field, hover over the contact's name to see the email address and other information associated with it. Double-click a contact's name to edit the email address or name.
   - We suggest using the carbon copy feature when you'd like to include additional recipients whose responses are welcome but not required. Display this field by clicking **Cc**. The blind carbon copy field (click **Bcc** to display) lets you hide recipients' addresses and names from one another.
3. Enter a subject for your message in the "Subject" field.
4. Write your message! Just click in the large field below the subject line and type away.
5. When you're done composing, click the **Send** button at the bottom of your compose window.

These are just the basics of composing mail, but there's a lot more you can do, like change the color of your text, or add a signature. Learn more about composing mail.

Checking mails:

Mails received can be checked first by clicking on "inbox" which is on left hand side and then by clicking on the mail received.

3.10 What are Social Media?

Just as the Internet has changed the way we buy music, organize vacations, and research school projects, it has also affected how they interact socially. Through the use of social media, people can exchange photos and videos, post their thoughts on blogs, and participate in discussions hosted by online forums. Social media also allow individuals, companies, organizations, governments, and parliamentarians to reach large numbers of people.

The term "social media" refers to the wide range of Internet-based and mobile services that allow users to participate in online exchanges, contribute user-created content, or join online communities.

The kinds of Internet services commonly associated with social media include the following:

- ***Blogs.*** Short for "web log," a blog is an online journal in which pages are usually displayed in reverse chronological order. Blogs can be hosted for free on websites such as WordPress and Blogger.
- ***Wikis.*** A wiki is "a collective website where any participant is allowed to modify any page or create a new page using her Web browser." One well-known example is Wikipedia, a free online encyclopedia that makes use of wiki technology
- ***Social bookmarking.*** Social bookmarking sites allow users to organize and share links to websites. Examples include Delicious, Digg, and reddit.
- ***Social network sites.*** These have been defined as "web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system." Among the most popular are Facebook, MySpace and Windows Live Spaces.
- ***Status-update services.*** Also known as microblogging services, status-update services such as Twitter allow people to share short updates about themselves and to see updates about others.
- ***Virtual world content.*** These sites offer game-like virtual environments in which users interact. One example is the imaginary world constructed in Second Life, in which users create avatars (a virtual representation of the user) that interact with others.
- ***Media-sharing sites.*** These sites allow users to post videos or photographs. Popular examples include YouTube and Flickr.

These categories overlap to some degree. Twitter, for example, is a social network site as well as a status-update service. Likewise, users of the social network sites Facebook and MySpace can share photographs, and users of the media-sharing site Flickr can create lists of contacts.

Few Sites of Social Media

There are several different online social networks, but for our purposes, we'll focus on the three that tend to be used the most by learning professionals–Facebook, LinkedIn and Ning. Each of these networks has its own unique style, functionality and patterns of usage. You will also find that different people are active in these different networks.

LinkedIn is primarily a professional network, designed to facilitate linkages between people who are wanting to connect for work-related purposes. It is more "buttoned-down" than Facebook with a more formal culture of relationships and connections. It is also the network of choice for most professionals.

Because LinkedIn is designed for professional networking, there's a greater emphasis on building a reputation and connecting to employment and business opportunities. LinkedIn Questions and Answers is a way for people to ask questions and receive expert advice. Answers can be rated and people who do this well can improve their LinkedIn reputation. There are also employment listings and an ability to receive recommendations from your connections that then become part of your profile. You can also create and join groups.

Facebook was originally developed for college students to connect, so it has a more informal, social air than you find on LinkedIn. Now open to anyone, you will still find that Facebook is the preferred network for Millenials who see the encroachment of Boomers and, to a lesser extent, Gen X into the network as cause for some alarm.

Facebook combines the personal and the professional. Members can play games, join groups, share photos, and send each other virtual "gifts." This is the network where you're most likely to see both pictures of someone's weekend activities, as well as a link to their online portfolio or professional website. Many companies are using Facebook as a recruitment tool for Gen Y, while college and university professors are exploring it's use for their classes.

Ning is what's referred to as a "white label" network–anyone can use the Ning platform to create their own social network related to a particular topic or area of interest. We are operating this class on the Ning platform As a learning professional, you will want to think of Ning in two ways. First, there are a number of Ning networks related to various topics of interest to learning professionals that you could join. In addition, because Ning allows you to create your own network from scratch, you can also use it to facilitate learning events or activities. Therefore Ning offers opportunities for you to be both a joiner/collector and a creator.

One great advantage of Ning for learning is that it allows you set up your own private space that can only be accessed by members. It also offers great functionality, including allowing members to write blogs and engage in forum discussions.

A short message on owning your data

Open source gives you something extra though, and that is the ability to take the whole application, source code and all, and move it or even modify it. For instance, this website is on WordPress, an open source blogging platform. If I am not satisfied with my host, I can take the whole application and set it

up somewhere else. I cannot do that with Gmail or Skype or Ning. Therefore, I own my data and the application that makes my data available to my readers. With almost 2,000 posts on this blog, these data are becoming quite important to me as my knowledge base. The decision to use an OS system as well as an OS database gives me a certain amount of flexibility, evidenced by my switch from Drupal to WordPress. My only costs were labour. I could not have taken my data out of a proprietary system (like *Ning*) as easily.

Common Features of Social Networks

The ability to create a ***Profile page***–this is your main "home" on the network. Different networks offer varying abilities to personalize your page in terms of look and feel. They may also differ in terms of the types of information you would include, such as name, location, education, etc. Facebook, for example, asks for your relationship status (because it's more "social"), while on LinkedIn, which is primarily for professional use, does not.

A way to find and link to "friends" or connections–The purpose of a network is connections, so facilitating a members' ability to find and connect to other people is important. Each network offers different types of search capabilities and once you've located a potential friend, you must send an "invitation" to invite them into your personal network.

Privacy Controls–In most networks, your ability to access more detailed information about a person is based on their status as one of your connections; "friends" can see much more information than those who are not your "friends." You can control who is actually in your personal network by effectively managing who you invite into your network and whose invitations you accept.

The ability to send public and private messages–In Ning and Facebook, you can communicate with your connections either by sending a private message or "writing on their wall." On LinkedIn, you communicate via person-to-person messages. Ning also provides Forums where members can interact with one another on specific topics (you're reading this in one of the Ning forums).

Ability to share various digital objects and information–Both Ning and Facebook allow members to share various online items, including photos, videos and RSS feeds. LinkedIn offers some ability to share links, although it's multimedia capacities are nothing like what you find on Facebook or Ning.

Creating a blog might seem like a daunting task, and you might not know where to begin. Truth be told, it's very easy to create a blog (for free), and you can do it in under an hour by following these four simple steps. What are you waiting for? Join the blogosphere today!

Here's How:

1. **Step 1: Choose a free blogging software.**

   Read these articles from About.com Web Logs to help you choose the best blogging software for you:

2. **Step 2: Register for an account and create your blog**

   These articles from About.com Web Logs provide step-by-step instructions to help you start a blog with either of the two most popular free blogging softwares - Blogger.com and Wordpress.com.

3. **Step 3: Select Your Domain, Theme and Other Options.**

   During the registration process for your new blog account, you'll need to choose a domain name and blog theme. You also might want to take a few minutes before you actually start blogging to customize some of the other preferences for your blog that your blogging software allows you to modify such as the author name, comment moderation process, and so on. However, you're not required to do any customization before you start publishing blog posts.

4. **Step 4: Start blogging.**

   Once you've completed steps 1-3, you're ready to join the blogosphere and start publishing content on your blog. There are many more ways you can customize your blog with plug-ins, feeds, blogrolls, and more, but these four easy steps are all you need to follow in order to start a simple blog.

3.11 What is Skype?

Skype is for Calling, seeing, messaging and sharing with others – wherever they are.

Skype is for doing things together, whenever you're apart. Skype's text, voice and video make it simple to share experiences with the people that matter to you, wherever they are.

With Skype, you can share a story, celebrate a birthday, learn a language, hold a meeting, work with colleagues – just about anything you need to do together every day. You can use Skype on whatever works best for you - on your phone or computer or a TV with Skype on it. It is free to start using Skype - to speak, see and instant message other people on Skype for example. You can even try out group video, with the latest version of Skype.

If you pay a little, you can do more things, in more ways, with more people – like call phones, access WiFi or send texts. You can pay as you go or buy a subscription, whatever works for you. And in the world of business, this means you can bring your entire ecosystem of workers, partners and customers together to get things done. Try Skype out today and start adding your friends, family and colleagues. They won't be hard to find; hundreds of millions of people are already using Skype to do all sorts of things together.

What you'll need to get started

A webcam so you can let people see you (optional for bad hair days).

An internet connection.

A computer or mobile device with a microphone and speakers or a headset attached.

Getting started with Skype

All you need to do for starting skype is download Skype to your computer and sign in with your Microsoft account.

When you sign in, you can add your friends as contacts, then call, video call and instant message with them, wherever you are.

This guide will show you how to download and install Skype, and sign in for the first time.

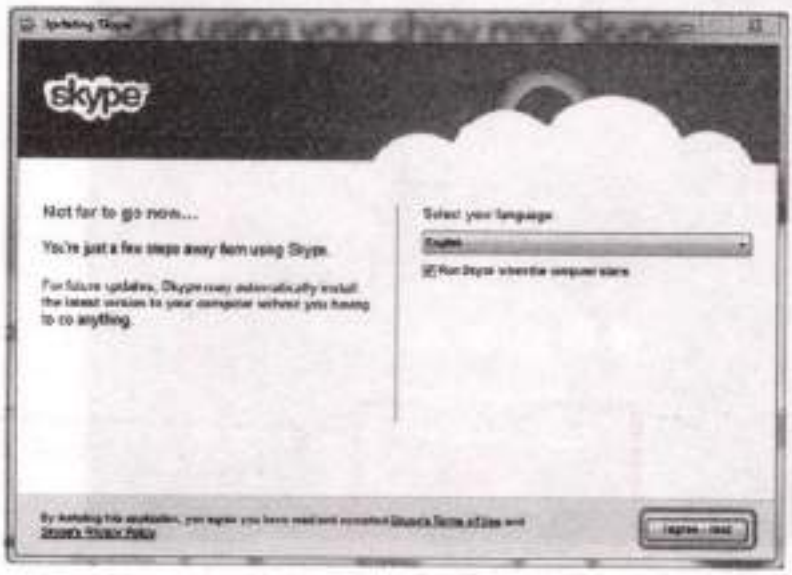
Downloading the latest version of Skype for Windows desktop

It's easy to download the latest version of Skype for Windows desktop:

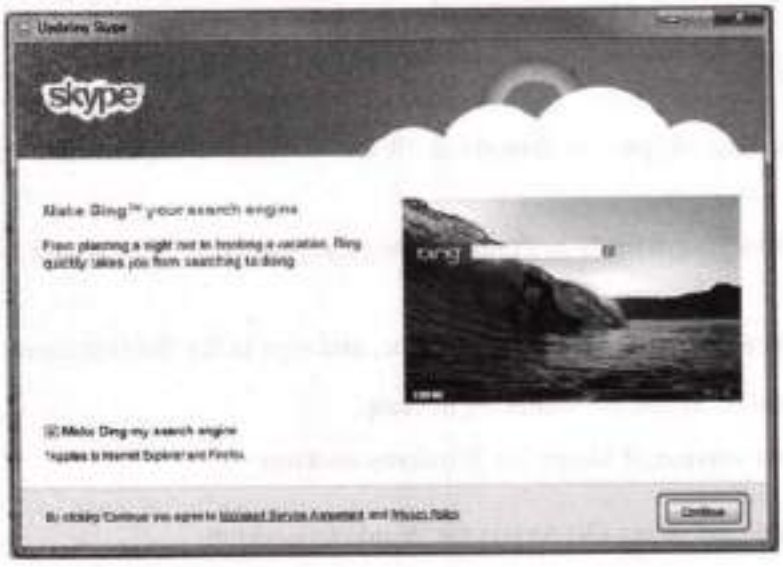
1 Go to the Skype website and select Get Skype for Windows desktop.

2 Save the Skype installation file and then open it to install Skype on your computer.

3 Select your language, read the Skype Terms of Use and the Skype Privacy Policy, then click I agree next.



4 Read the Microsoft Services Agreement and Privacy Policy, then selectContinue.
If you don't want Bing to be set as your internet search engine, uncheck theMake Bing my Search engine box before you click Continue.
If you have an antivirus software on your computer, it may ask you to give Skype permission to go ahead with the installation. Don't worry, it only happens once – just click Yes to proceed.



5 Your Skype installation starts. When it is complete, Skype opens and the sign-in screen is displayed.

Signing in to Skype for the first time

To begin using Skype, you need to sign in first. You can sign in with your:

- Skype Name – if you already have a Skype account
- Microsoft account
- Facebook account

No matter which of the three options you choose, you'll be able to use all the great Skype features such as free Skype-to-Skype calls, chatting with your friends and more.

Now you're ready to add your first Skype contact!
Get online at over two million public hotspots worldwide with Skype WiFi.

And that's just the start – discover other great features and do even more.

3.12 Google Drives

Get started with Google Drive for free and have all your files within reach from any smartphone, tablet, or computer. All your files in Drive – like your videos, photos, and documents – are backed up safely so you can't lose them. Easily invite others to view, edit, or leave comments on any of your files or folders.

With Drive, you can:

* View documents, PDFs, photos, videos, and more
* Search for files by name and content
* Easily share files and folders with others
* Set files or folders so anyone with a link can view, comment, or edit
* Quickly access recent files
* See file details and activity
* Enable viewing of files offline

Overview of Google Docs, Sheets, and Slides

3.13 What are Google Docs, Sheets and Slides?

Google Docs, Sheets, and Slides are productivity apps that let you create different kinds of online documents, work on them in real time with other people, and store them in your Google Drive online — all for free. You can access the documents, spreadsheets, and presentations you create from any computer, anywhere in the world. (There's even some work you can do without an Internet connection!) This guide will give you a quick overview of the many things that you can do with Google Docs, Sheets, and Slides.

Google Docs

Google Docs is an online word processor that lets you create and format text documents and collaborate with other people in real time. Here's what you can do with Google Docs:

- Upload a Word document and convert it to a Google document
- Add flair and formatting to your documents by adjusting margins, spacing, fonts, and colors — all that fun stuff
- Invite other people to collaborate on a document with you, giving them edit, comment or view access
- Collaborate online in real time and chat with other collaborators — right from inside the document
- View your document's revision history and roll back to any previous version
- Download a Google document to your desktop as a Word, OpenOffice, RTF, PDF, HTML or zip file
- Translate a document to a different language
- Email your documents to other people as attachments

Google Sheets

Google Sheets is an online spreadsheet app that lets you create and format spreadsheets and simultaneously work with other people. Here's what you can do with Google Sheets:

- Import and convert Excel, .csv, .txt and .ods formatted data to a Google spreadsheet
- Export Excel, .csv, .txt and .ods formatted data, as well as PDF and HTML files
- Use formula editing to perform calculations on your data, and use formatting make it look the way you'd like
- Chat in real time with others who are editing your spreadsheet
- Create charts with your data
- Embed a spreadsheet — or individual sheets of your spreadsheet — on your blog or website

Google Slides

Google Slides is an online presentations app that allows you to show off your work in a visual way. Here's what you can do with Google Slides:

- Create and edit presentations
- Edit a presentation with friends or coworkers, and share it with others effortlessly
- Import .pptx and .pps files and convert them to Google presentations
- Download your presentations as a .pdf, .ppt, .svg, .jpg, or .txt file
- Insert images and videos into your presentation
- Publish and embed your presentations in a website

Using Printer and Scanner

4.1 Scanners

A scanner is an electronic device that scans printed or handwritten text documents, images, or a particular object to convert them into a digital file format. The common types of scanners we see today are flatbed scanners, handheld scanners, sheetfed scanners, etc.

Flatbed Scanners

Flatbed scanners look like miniature printers with a flip-up cover protecting the glass platen. Depending on its size, a flatbed scanner can fit standard or legal-sized documents, and the flexible cover allows you to scan large items such as books. These scanners are great for scanning the occasional newspaper article, book chapter, or photograph; or for those who may need to scan or bulky items such as the cover of a DVD. Flatbed scanners are often built into multifunction printers (MFPs). You can find a decent flatbed scanner for $100 or less.

Photo Scanners

Scanning documents doesn't require high resolution or color depth; but scanning photos does. Many all-purpose scanners can also scan photos, meaning that you don't need a separate device to handle your photographs. But if you need a scanner primarily to digitize film negatives or slides, a photo scanner is a better deal (even if it is considerably more expensive than an all-purpose scanner). Photo scanners include specialized technology so that they can deal with slides and negatives; they also have built-in software to clean up old photos.

Sheetfed Scanners

Sheetfed scanners are smaller than flatbed scanners; as the name implies, you feed a document or photo into the scanner rather than place it on top. You'll win back some of that desktop space with a sheetfed scanner but you may sacrifice some resolution in the process. If you're only scanning documents, however, it may be a worthwhile trade, especially if you've got a lot of them since you can feed them in bunches. With a flatbed scanner, you'll have to scan one page at a time .

Portable Scanners

Portable scanners are small enough to bring on the road. In fact, some are small enough to put in your pocket; pen scanners are just a bit bigger than fountain pens and can scan the text of a document line by line. Some are as wide as a page and roll easily down the page. They're not going to give high-resolution scans and so aren't good for scanning photographs or other applications where you need a high-quality result. Since they're not cheaper than flatbed scanners, they're probably only useful if you are a student, a researcher, or a spy

Scan a picture

Using Windows Photo Gallery, you can scan, edit, and organize pictures. The scanned pictures are automatically stored in your Pictures folder, just like pictures that you might import from a camera.

You can also use Windows Fax and Scan to scan documents and pictures, and to fax or e-mail scanned documents. For more information about using Windows Fax and Scan, which is only available on some versions of Windows, see Help and Support. To see how to scan and manage a picture by using another program, check the Help for that program.

To scan a picture using Windows Photo Gallery

Before you begin, make sure that you've installed your scanner on the computer and that the scanner is turned on.

1. Open Windows Photo Gallery by clicking the Start button, clicking All Programs, and then clicking Windows Photo Gallery.
2. Click File, and then click Import from Camera or Scanner.
3. In the Import Pictures and Videos window, click the scanner that you want to use, and then click Import.
4. In the New Scan dialog box, click the Profile list, and then click Photo. The default settings for scanning a picture are automatically displayed.
5. If you're using a scanner with a document feeder, click the Paper size list, and then click the size of the picture that you've placed on the scanner or click the size that most closely matches the picture.
6. Click the Color format list, and then click the color format that you want the scanned file to display.
7. Click the File type list, and then click the file type that you want to use to save the scanned file.
8. Click the Resolution (DPI) list, and then click the resolution, in dots per inch, that you want to use.
9. Adjust the brightness and contrast settings or type the values that you want to use.
10. To see how the picture will appear when it is scanned, click Preview. If needed, modify the scan settings, and then preview the picture again. Repeat these steps until you're satisfied with the preview results. Some scanners might require you to place the picture in the document feeder each time that you scan.

11. Click Scan. When the scan is complete, Windows Photo Gallery prompts you to tag the picture so that it's easier to organize or find later.
12. In the Tag these pictures (optional) list, type a tag name, and then click Import. Windows Photo Gallery displays the picture so you can view, fix, or organize it.

Scan photos for e-mail and Web

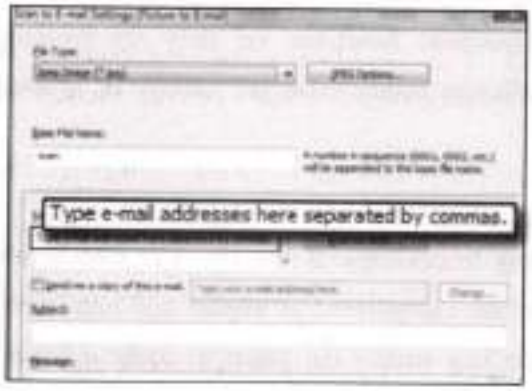
Photos viewed only on a computer screen will look fine when scanned at lower resolutions.

Your pictures are meant to be shared. And scanning let's you share any photo easily. To ensure that your photo is easy to view in e-mail (and doesn't take forever to download), follow these guidelines:

- **Choose a lower ppi (scanning resolution of 75 or 100 ppi)** for images that you'll **send via e-mail or post online**.
- **JPEGs** are just fine for images you'll share **via e-mail or online**.

How to scan photos to e-mail

*If you press the **Scan** button and the HP scanning software doesn't open on your computer, make sure you have installed the software.*



Most HP All-in-Ones and scanners, like the HP Scanjet G4050 Photo Scanner, allow you to scan your photos directly to e-mail in a few short steps:

1. Place the original face down on the scanner glass.
2. Press the **Scan** button on your scanner. The HP scanning software will automatically open on your computer.
3. In the **Scanning from...** window that appears, select **Picture to E-mail**. Then click **Scan**.
4. In the next window, enter a destination e-mail address, subject, and message. Click **OK**.

That's it! An e-mail with the attached scanned photo has been sent.

4.2 What is a Printer?

A **printer** is an electromechanical device which converts the text and graphical documents from electronic form to the physical form. Generally they are the external peripheral devices which are connected with the computers or laptops through a cable or wirelessly to receive input data and print them on the papers. A wide range of printers are available with a variety of features ranging from printing black and white text documents to high quality colored graphic images.

Quality of printers is identified by its features like color quality, speed of printing, resolution etc. Modern printers come with multipurpose functions i.e. they are combination of printer, scanner, photocopier, fax, etc. To serve different needs there are variety of printers available that works on different types of technologies.

Types of Printers

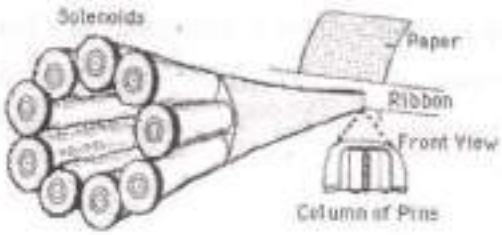
Since the invention of the printing technology, a variety of technologies have been employed in computer printers. Broadly printers are categorized as impact and non impact printers. Impact printers are the type of printers in which a key strikes the paper to make a letter. The examples of Impact printers are Daisy wheel and Dot matrix printers. While non-impact printers do not operate by striking a head against a ribbon. Inkjet printers and laser printers are the non-impact printers. The most popular printers are described.

2. Dot Matrix Printers

It is a popular computer printer that prints text and graphics on the paper by using tiny dots to form the desired shapes. It uses an array of metal pins known as printhead to strike an inked printer ribbon and produce dots on the paper. These combinations of dots form the desired shape on the paper. Generally they print with a speed of 50 to 500 characters per second as per the quality of the printing is desired. The quality of print is determined by the number of pins used (varying from 9 to 24).

The key component in the dot matrix printer is the 'printhead' which is about one inch long and contains a number of tiny pins aligned in a column varying from 9 to 24. The printhead is driven by several hammers which force each pin to make contact with the paper at the certain time. These hammers are pulled by small electromagnet (also called solenoids) which is energized at a specific time depending on the character to be printed. The timings of the signals sent to the solenoids are programmed in the printer for each character.

Printhead of Nine Pin Printer



The printer receives the data from the computer and translates it to identify which character is to be printed and the print head runs back and forth, or in an up and down motion, on the page and prints the dots on the paper.

3. Inkjet printers

Inkjet printers are most popular printers for home and small scale offices as they have a reasonable cost and a good quality of printing as well. A typical inkjet printer can print with a resolution of more than 300 dpi and some good quality inkjet printers are able to produce full colored hard copies at 600 dpi.

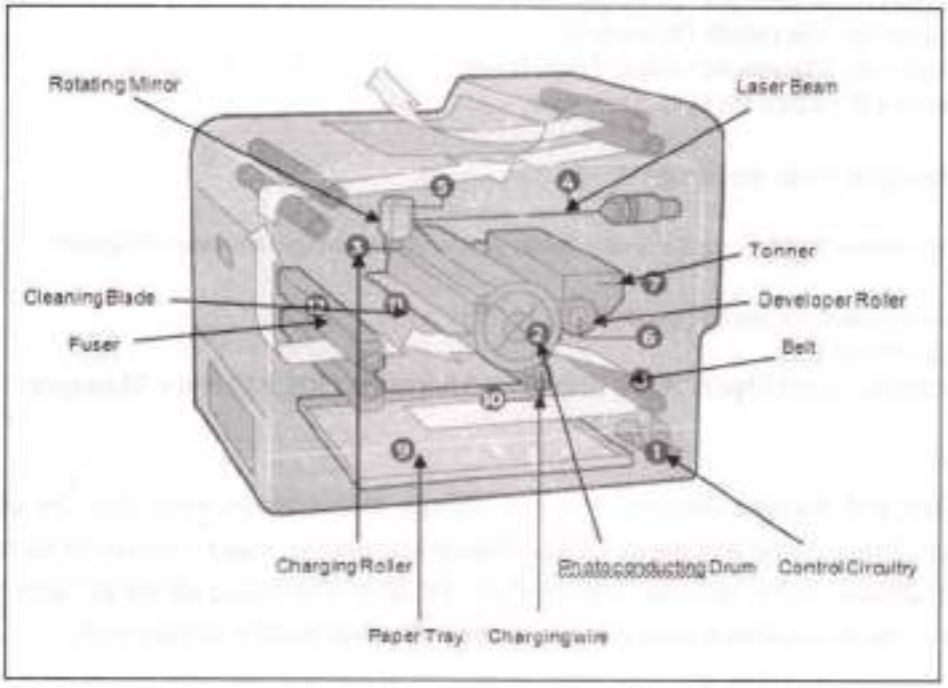
An inkjet printer is made of the following parts:

- Printhead – It is the heart of the printer which holds a series a nozzles which sprays the ink drops over the paper.
- Ink cartridge – It is the part that contains the ink for printing. Generally monochrome (black & white) printers contain a black colored ink cartridges and a color printer contains two cartridges – one with black ink and other with primary colors (cyan, magenta and yellow).

Similar to other printers, inkjet printers have a 'printhead' as a key element. The printhead has many tiny nozzles also called as jets. When the printer receives the command to print something, the printhead starts spraying ink over the paper to form the characters and images.

4. **Laser Printers**

Laser printers are the most popular printers that are mainly used for large scale qualitative printing. They are among the most popularly used fastest printers available in the market. A laser printer uses a slight different approach for printing. It does not use ink like inkjet printers, instead it uses a very fine powder known as 'Toner'. Componetns of a laser printer is shown in the following image:



Monochrome v/s Color Printers

Color printers work on the same concept of monochrome printers. They use four color toners (ink cartridges in case of inkjet printers) instead of one black colored toner in the black and white printers. Typically the colors are –Cyan, Magenta, Yellow and Black that are used to print in full color. There are four different drums and each drum is associated with the separate color toner. When printer receives the printing data, the paper is charged corresponding to the different color drums. The paper passes through each drum and the corresponding color toner particles gets stuck on the paper. As the paper passes through all four drums, the desired colored shape gets printed on the paper. Since the paper passes through four drums, color printers are four times slower than the monochrome printers and several times expensive.

4.3 Use Picture Manager

Microsoft Picture Manager is installed with all Office Suites and can be used on individual images.

Start Picture Manager from the Start menu

Use the following instructions to start Picture Manager.

1. From the **Start** menu, select **All Programs**.
2. Click to open the **Microsoft Office** folder.
3. Click to open the **Microsoft Office Tools** folder.
4. Click **Microsoft Office Picture Manager**.

Start Picture Manager from an image

Use the following instructions to start Picture Manager from an image on your computer.

1. On your computer, locate the picture you want to work with.
2. Right-click the picture.
3. From the menu, select **Open With**, then click **Microsoft Office Picture Manager**.

Edit your pictures

By using the **Edit** and **Picture** menues, you can change how your pictures look by adjusting the following settings. You can use Microsoft Office Picture Manager to make corrections to your pictures such as fixing brightness, color, or removing red eyes. To save time, select all the pictures you want to correct at one time, then use Auto Correct or one of the individual picture editing tools.

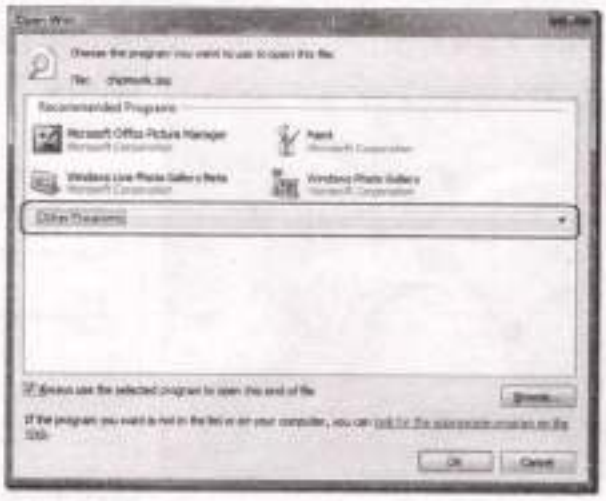
The editing tools available in Picture Manager include:

- **Brightness and contrast** Allows you to adjust the difference between light and dark tones. You can use this feature to correct pictures that appear too light or too dark.
- **Color** Allows you to adjust the hue and saturation. You can use this feature to correct pictures with colors that are tinted or dull.
- **Crop** Allows you to crop out unwanted parts of a picture. You can use this feature to correct pictures that contain distracting elements.
- **Rotate and Flip** Allows you to rotate pictures or flip them on the current axis of the picture. You can use this feature to correct pictures that you have taken sideways for a portrait orientation.
- **Red eye removal** Allows you to remove the red from your picture subjects' eyes caused by the camera's flash. You can use this feature to correct red eyes wherever they appear.
- **Resize** Allows you to change the dimensions of a picture. You can use this feature to enlarge a picture for printing or reduce it to send in e-mail messages or share on the Internet.

When you have finished editing, you can save the changes. Click **Save** to save your changes, or use **Save As** to create a new image, while keeping the original.

Resize And Crop Image With Microsoft Office Picture Manager

To start editing the image, **right-click** on any photo and select **Open With**, from the list select **Windows Office Picture Manager**, if it is not given in the list, click on **Choose Default Program**. Now click on **Other Programs**(see screenshot) and you will find it there.



Once you have opened the image with **Microsoft Office Picture Manager**, click on **Edit Pictures** (see screenshot).

Now you will see **Edit Pictures** toolbox on the right side, now under **Edit using these tools**, click on **Crop**, and you will find multiple options to crop the photo(check screenshot).

After you have done cropping click **OK** and click **Back to Edit Pictures**, now under **Change Picture Size** click on **Resize**. Here you will find various options to resize the image, there are list of **predefined sizes**, you can **custom set** them too and lastly you can resize on the basis of **percentage of original size**.

After you are done click **OK**. Now you can save this new edited photo by clicking **CTRL+S** or by going to **File > Save**. That's it. Enjoy!

Microsoft Picture Manager

Microsoft Picture Manager

Microsoft Office Picture Manager allows you to easily manage and edit pictures and supports the following file types: jpg, jpeg, gif, bmp, tif, tiff, wmf and emf. You can use Picture Manager to adjust the brightness and contrast of an image, change the colour, crop, rotate and flip, resize and compress the image.

To launch Microsoft Office Picture Manager:

- Click on Start | Programs | Microsoft Office | Microsoft Office Tools | Microsoft Office Picture Manager to display the Picture Manager Interface.

Editing an Image

Images may be edited in a number of ways. To edit an image:

1. Select the image you wish to edit.
2. Select the **Single Picture View**.
3. Click on **Edit Pictures** in the **Getting Started** task pane or click on the **Edit Pictures** button on the **Formatting** toolbar to display

Brightness and Contrast

The colours and brightness of an image may be changed. To adjust brightness and colour:

1. Select the image you wish to edit.
2. Select the **Single Picture View**.
3. Click on **Brightness and Contrast** in the **Edit Pictures** task pane or select **Picture | Brightness and Contrast** to display the Brightness and Contract task pane.
4. Click on **More** for more options.
5. Click on the **Auto Brightness** button to automatically correct the brightness levels, or adjust the various settings manually.

When changes have been made to an image, they can either be saved by selecting **File | Save** or discarded by selecting **Edit | Discard Changes**.

Colour

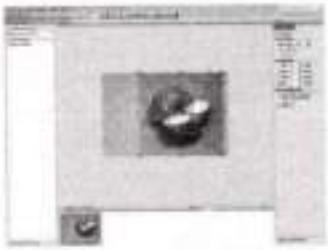
The colour of an image may be changed.

To change the colour:

1. Select the image you wish to edit.
2. Select the **Single Picture View**.
3. Click on Color in the Edit Pictures task pane or select **Picture | Color** to display the Color task pane.
4. Click on the **Enhance Color** button and then click on something white within the picture to automatically correct the colour balance, or adjust the settings manually.

When changes have been made to an image they can either be saved by, selecting **File | Save** or discarded by selecting **Edit | Discard C hanges**.

Cropping an Image



Images may be cropped to discard unwanted areas.

To crop an image:

1. Select the image you wish to edit.
2. Select the Single Picture View.
3. Click on Crop in the Edit Pictures task pane or select Picture | Crop to display the Crop task pane.
4. Set the required Aspect Ratio if you want the ratio between height and width to be maintained, otherwise set it to None.
5. Either enter the appropriate amount of pixels you wish to crop the picture to or drag the bars on the picture to the appropriate places.
6. Click on **OK**. The cropped version of the picture is now displayed.

When changes have been made to an image, they can either be saved by selecting **File | Save** or discarded by selecting **Edit | Discard C hanges.**

Rotate and Flip

Images may be rotated right, left or by a degree and flipped horizontally and vertically.
To rotate/flip an image:

1. Select the image you wish to edit.
2. Select the **Single Picture View**.
3. Click on **Rotate and Flip** in the **Edit Pictures** task pane or select **Picture | Rotate and Flip** to display the **Rotate and Flip** task pane.
4. Make the required changes.

When changes have been made to an image, they can either be saved by selecting **File | Save** or discarded by selecting **Edit | Discard Changes**.

Red Eye Removal

Red Eye Icon

Crosshairs

The red eye removal tool eliminates the red eye problem some people experience when getting film developed. The red eye problem is caused by light from the flash reflecting off the retina in the eyes.

1. **Select** a picture.
2. Go to the **Picture** menu and choose **Red Eye Removal**.
3. Crosshairs will appear as your cursor. Use the crosshairs to place a red eye icon inside the affected area.
4. Select **OK**

Figure to the left is a before and after example of the power of this software As you can see, Picture Manager makes the photo look significantly better.

Resizing an Image

There are three ways in which you can resize an image. You can either use the predefined settings, manually enter a height and width or
enter a percentage of the original height and width.

To resize an image:

1. Select the image you wish to edit.

2. Select the **Single Picture View**.
3. Click on **Resize** in the **Edit Pictures** task pane or select **Picture | Re size** to display the Resize task pane.
4. Adjust the size of the image as required.
5. Click on **OK**.

When changes have been made to an image, they can either be saved by selecting **File | Save** or discarded by selecting **Edit | Discard C hanges**.

Compressing an Image

Compressing an image is beneficial when you wish to make an image size smaller, so that it may be may be used in a web site or sent in an email.

To compress an image:

1. Select the image you wish to edit.
2. Select the **Single Picture View**.
3. Click on Compress Pictures in the **Edit Pictures** task pane or select **Picture | C ompress Pictures** to display Compress Pictures task pane.
4. Select the required compression option.
5. Click on **OK**.

When changes have been made to an image, they can either be saved by selecting **File | Save** or discarded by selecting **Edit | Discard C hanges**.

Saving an Image

It is good practice to preserve the original image and save the edited image with a different file name.
To save an image:

1. Click on **File | Save As** to display the Save As dialog box.
2. In the **File name** box, enter a new meaningful name for the image. Images for the Web should not have any spaces in the file name.
3. Click on the **Save** button. The Save As dialog box is closed and image is saved.

Assignments

MS-WORD

ASSIGNMENT -1

Guntur-,
05-09-2014.

To
The Principal,
Govt. College for Women,
GUNTUR.

Respected Madam,

As I have completed my three year degree course in this college, I request you madam to please issue my T.C and Study Certificate.

Thanking you,

Yours faithfully,
G. Harika,
III B.Sc, M.P.Computers.

ASSIGNMENT -2

Preserve EPS Colors prints the Original EPS colors even if you have modified them in Pagemaker.

To Print the original EPS Colors:

1. Choose File Print and then click color.
2. Select preserve EPS Color.
3. Click Print.

To Restore a script that has been removed from the Scripts palette:

A. Choose Restore Script form the Scripts palette menu.

B. From the list removed scripts, select a script and click the Restore button.

To import tagged text:

- Choose File>Place
- Computers

ASSIGNMENT -3

Nitro PDF

Nitro PDF Professional provides you with an easy way to convert your paper documents to digital form for easier storage and access. Depending on the type of scanner you have, you will be able to convert pages one at a time, or do whole collections of pages in the one process. If you need to, you can also merge documents as you go to create the one complete PDF document.

ASSIGNMENT -4

Internet Skills

A **computer network**, or simply a **network**, is a collection of computers and other hardware components interconnected by communication channels that allow sharing of resources and information.[1] Where at least one process in one device is able to send/receive data to/from at least one process residing in a remote device, then the two devices are said to be in a network. Simply, more than one computer interconnected through a communication medium for information interchange is called a computer network.

Networks may be classified according to a wide variety of characteristics, such as the medium used to transport the data, communications protocol used, scale, topology, and organizational scope.

LAN - Local Area Network

A LAN connects network devices over a relatively short distance. A networked office building, school, or home usually contains a single LAN, though sometimes one building will contain a few small LANs (perhaps one per room), and occasionally a LAN will span a group of nearby buildings. In TCP/IP networking, a LAN is often but not always implemented as a single IP subnet.

In addition to operating in a limited space, LANs are also typically owned, controlled, and managed by a single person or organization. They also tend to use certain connectivity technologies, primarily Ethernet and Token Ring.

ASSIGNMENT -5

Internet The Internet is a global system of interconnected governmental, academic, corporate, public, and private computer networks. It is based on the networking technologies of the Internet Protocol Suite. It is the successor of the Advanced Research Projects Agency Network (ARPANET) developed by DARPA of the United States Department of Defense. The Internet is also the communications backbone underlying the World Wide Web (WWW).	Participants in the Internet use a diverse array of methods of several hundred documented, and often standardized, protocols compatible with the Internet Protocol Suite and an addressing system (IP addresses) administered by the Internet Assigned Numbers Authority and address registries. Service providers and large enterprises exchange information about the reachability of their address spaces through the Border Gateway Protocol (BGP), forming a redundant worldwide mesh of transmission paths.

ASSIGNMENT -6

$(x + y)^2 = x^2 + y^2 + 2xy{:}l_2 + m_2 + 2lmn.$

COMPUTERS

COMPUTERS

C O M P U T E R S

ASSIGNMENT-7

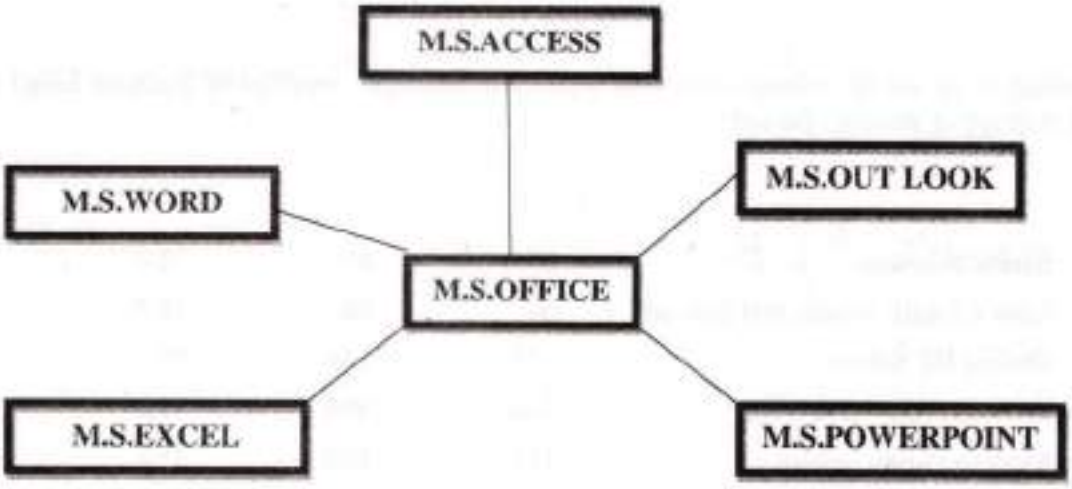
Jawahar Knowledge Center

ASSIGNMENT -8

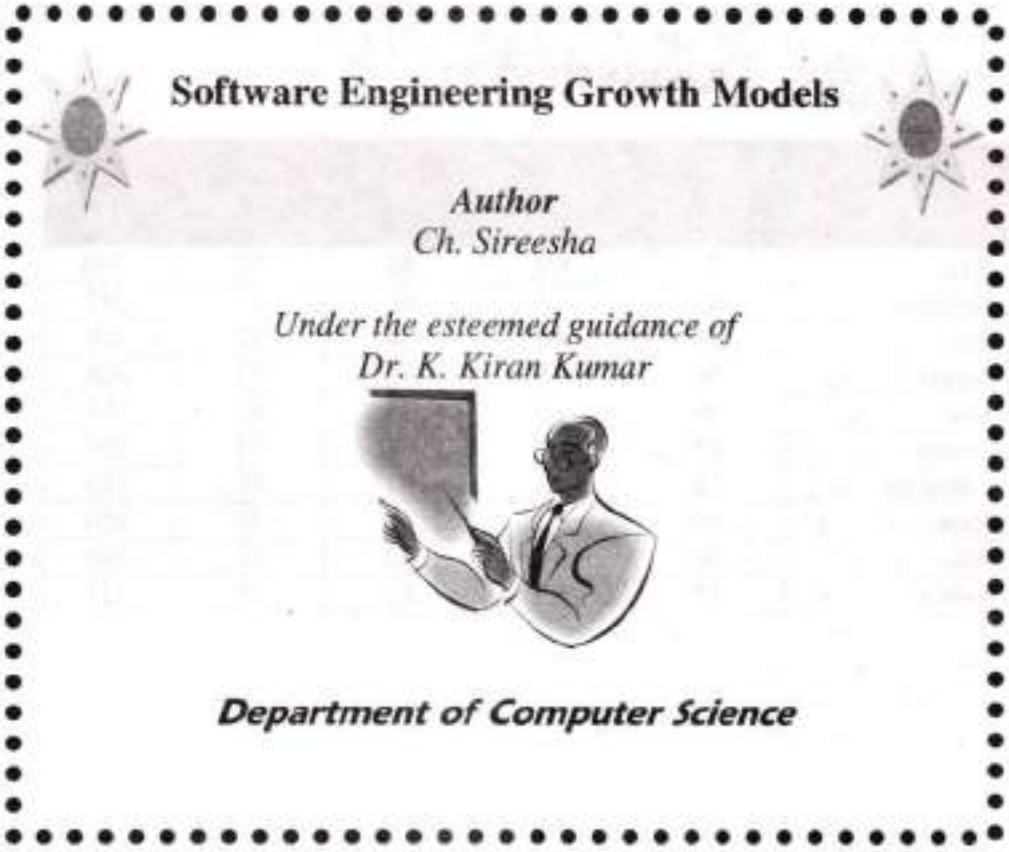
On-line Forms: Rail Journey

A number of Web sites allow you to request or provide specific information by using on-line interactive forms. These forms usually include a series of blank boxes, known as 'fields' into which you type information. Often there can be buttons and check boxes to enable you to make selections. Once the form is complete you press a Submit button for your information to be sent. In this Activity, imagine that you wish to travel by rail to London tomorrow morning, leaving from Glasgow at around 10.00am and returning a week later leaving London around 2.00pm. Shopping on the Internet is a bit like having a huge mail order catalogue with an overwhelming amount of goods that can be purchased online.

ASSIGNMENT-9



ASSIGNMENT -10



ASSIGNMENT -11

Following is the list of schools with total number of Students, number of Students failed in any subject and average of students passed.

1.	Santhi Nikethan	87	49	72.4
2.	Viswa Santhi Residential School	69	08	46.3
3.	Oxford IIT School	173	143	93
4.	Sri Satya Sai Vidya Vihar	386	386	100
5.	Modern Public School	111	110	150
6.	Kenrick English Medium School	137	99	87.5
7.	Sri Chaitanya Techno School	57	37	75.4
8.	Narayana English Medium School	238	157	89
9.	Bhashyam Public School	129	101	89.1
10.	Sri Venkateswara Bala Kuteer	138	145	110

ASSIGNMENT-12

SLNo	Name	Telugu	English	Maths	Science	Total
1	Ram	77	99	88	54	318
2	Krishna	87	95	68	47	297
3	Ravi	98	85	74	52	309
4	Aruna	96	85	75	52	308
5	Mary	99	85	75	95	354
6	Anand	85	69	58	74	286
7	Lakshmi	78	95	85	75	333
8	Raju	66	55	77	52	250
9	Ajay	86	95	42	82	305
10	Santhi	75	95	82	75	327

MS-EXCEL

ASSIGNMENT-13

Govt. Degree College for Women

TIME TABLE

Day	10-11	11-12	12-1	Lunch	2-3	3-4	4-5
Monday	Maths	Computers	Physics		Computers		
Tuesday	Maths	Statistics	Computers		Maths		
Wednesday	Maths	Computers	Statistics		Maths		
Thursday	Science & Technology	Physics	Computers		Computers		
Friday	Computers	Maths	Statistics		Statistics		
Saturday	Statistics	Maths	Computers		Statistics		

ASSIGNMENT-14

Enter the Following data in the spread sheet

Sl.No.	Ice Cream Flavour	Sales on Zone-1	Sales on Zone-2
1	Vannela	2000	3200
2	Butter Scotch	4000	6300
3	Straw Berry	1800	2900

ASSIGNMENT -15

Create the following spread sheet by using formulae for calculating total and result.

Sl.No.	Name	Telugu	English	Maths	Science	Total	Result
1	Ram	77	99	88	54	318	Pass
2	Krishna	87	95	68	47	297	Pass
3	Ravi	98	31	74	52	309	Fail
4	Aruna	96	85	75	52	308	Pass
5	Mary	99	85	75	28	354	Fail

ASSIGNMENT 16

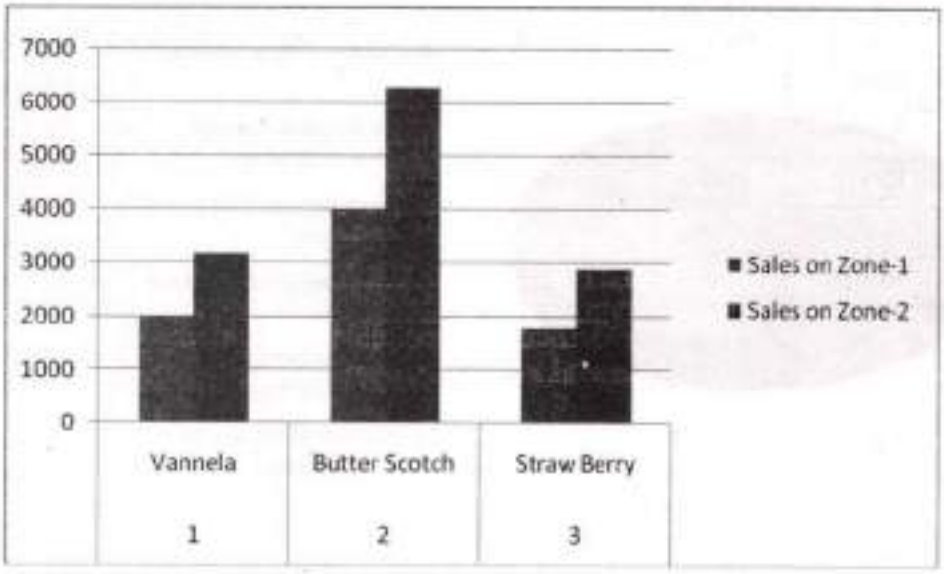
Number	Sqrt. Number	Round	Ceil	Floor
56.3	7.503332593	56	57	56
48.2	6.942621983	48	49	48
78.2	8.843076388	78	79	78
88.9	9.428679653	89	89	88
25.7	5.069516742	26	26	25
69.5	8.336666	70	70	69

ASSIGNMENT-17

Create Bar Graph for the following data.

Sl.No.	Ice Cream Flavour	Sales on Zone-1	Sales on Zone-2
1	Vannela	2000	3200
2	Butter Scotch	4000	6300
3	Straw Berry	1800	2900

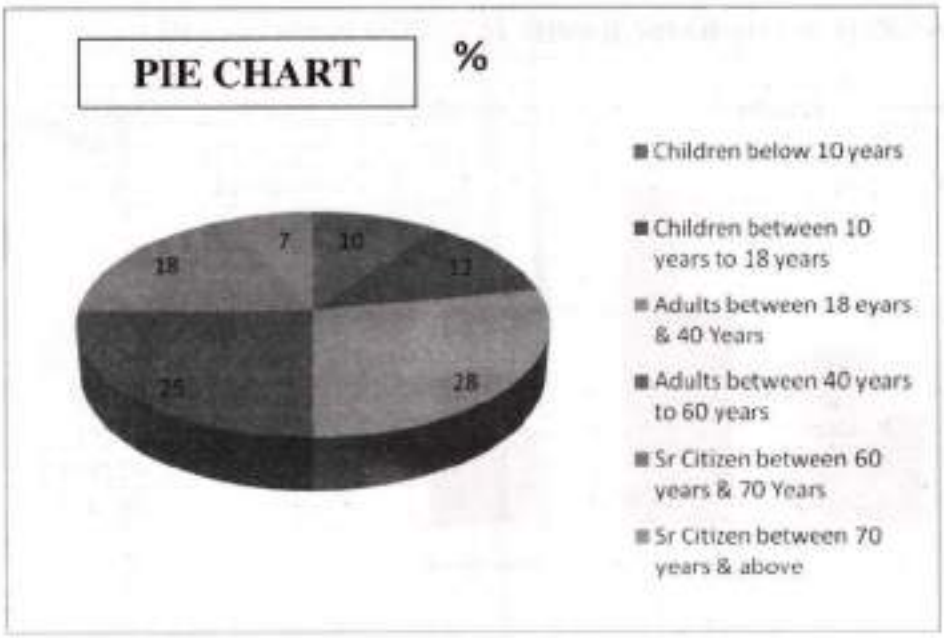
BAR-GRAPH



ASSIGNMENT 18

Create a Pie chart for the following data

Population	%
Children below 10 years	10
Children between 10 years to 18 years	12
Adults between 18 eyars & 40 Years	28
Adults between 40 years to 60 years	25
Sr Citizen between 60 years & 70 Years	18
Sr Citizen between 70 years & above	7



ASSIGNMENT-19

Create the following spreadsheet

Sl.No.	Empid	Ename	Age	Gender	City	Salary
1	1025	Bhuvan	25	M	Vijayawada	50,000
2	1026	Bhavana	26	F	Guntur	58,000
3	1027	Saritha	32	F	Guntur	42,000
4	1028	Sushmitha	24	F	Guntur	28,000
5	1029	Rani	40	M	Vijayawada	60,000
6	1030	Shankar	26	M	Guntur	59,000
7	1031	Daniel	27	M	Kurnool	60,000
8	1032	Swetha	28	F	Vizag	25,000

1. Display the details of employees who are staying at Vijayawada using filters.

Sl.No.	Empid	Ename	Age	Gender	City	Salary
1	1025	Bhuvan	25	M	Vijayawada	50,000
5	1029	Rani	40	M	Vijayawada	60,000

2. Display the details of all Female employees staying at Guntur

Sl.No.	Empid	Ename	Age	Gender	City	Salary
2	1026	Bhavana	26	F	Guntur	58,000
3	1027	Saritha	32	F	Guntur	42,000
4	1028	Sushmitha	24	F	Guntur	28,000

3. Display the details of all employees in Ascending order based on Employee name

Sl.No.	Empid	Ename	Age	Gender	City	Salary
2	1026	Bhavana	26	F	Guntur	58,000
1	1025	Bhuvan	25	M	Vijayawada	50,000
7	1031	Daniel	27	M	Kurnool	60,000
5	1029	Rani	40	M	Vijayawada	60,000
3	1027	Saritha	32	F	Guntur	42,000
6	1030	Shankar	26	M	Guntur	59,000
4	1028	Sushmitha	24	F	Guntur	28,000
8	1032	Swetha	28	F	Vizag	25,000

ASSIGNMENT-20

Create the following spread sheet using autofill

Sl.No.	ename	Basic Pay	D.A (30% of Basic Pay)	H.R.A (12% of Basic Pay)	Gross Salary (Basic Pay+ D.A+HRA)
100	Rama Rao	10,000	3000	1200	14,200
101	Sankar Rao	20,000	6000	2400	28,400
102	Seetha Lakshmi	10,000	3000	1200	14,200
103	Lalitha Rani	25,000	7500	3000	35,500
104	Kutumba Rao	30,000	9000	3600	42,600
105	Sai Kiran Jain	45,000	13500	5400	63,900
106	Rama Lakshmi	40,000	12000	4800	56,800
107	Neethu Sarma	15,000	4500	1800	21,300
108	Mohan Ram	20,000	6000	2400	28,400

ASSIGNMENT-21

Create Custom List for all the employee names of the spread sheet of Assignment 20.

ASSIGNMENT-22

Create a Powerpoint Presentation with 10 slides for your favourite lesson.

MS-ACCESS

ASSIGNMENT-23

1. Create a table 'employee' with structure eid, ename, designation, gender, job.
2. Enter any ten records in the table.
3. Create a query to display the details of all 'female' employees.
4. Create a query to display the detials of all employees who are 'programmers'.

ASSIGNMENT-24

1. Create a table 'Student' with the structure Roll.No, Sname, Dob, M1, M2, M3 and total.
2. Enter any 10 records in the table.
3. Generate a report with roll no, name and total marks.
4. Generate report with Roll No, Marks of all subjects , total and percentage.

JKC

JAWAHAR KNOWLEDGE CENTRE (JKC)

Analytical Skills

- Student's Book

Commissionerate of Collegiate Education
Government of Andhra Pradesh
BRKR Bhavan, Hyderabad.

JKC

JAWAHAR KNOWLEDGE CENTRE (JKC)

Analytical Skills

- Student's Book

Commissionerate of Collegiate Education
Government of Andhra Pradesh
BRKR Bhavan, Hyderabad.

JKC Monitoring Cell
Jawahar Knowledge Centre
Commissionerate of Collegiate Education
Govt. of A.P., Hyderabad.
website: www.che.ap.gov.in
e-mail: cce.jkc@gmail.com

Analytical Skills
-Student's Book

January, 2015

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GANTA SRINIVASA RAO
MINISTER FOR HUMAN RESOURCE DEVELOPMENT (PRIMARY EDUCATION, SECONDARY EDUCATION, HIGHER & TECHNICAL EDUCATION)
GOVERNMENT OF ANDHRA PRADESH

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Message

I am happy to note that the Commissionerate of College Education has brought out four books for the aid of JKC Students and teachers. I hope that the material will help the students in acquiring additional skills which are essential for their employment and future career.

Jawahar Knowledge Centers (JKCs) have been doing a good service to the students in bringing out their innate skills, particularly among rural poor and other disadvantaged sections.

I appreciate the efforts of the officials for strengthening the Jawahar Knowledge Centers there by paving way for bright future of the youth of newly formed Andhra Pradesh State.

I wish the students of JKCs a present success in their endeavor.

(Ganta Srinivasa Rao)

Acknowledgements

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Department of Collegiate Education

Foreword

The Department of Collegiate Education strives in making higher education accessible to all sectors of people and promotes women education at Under Graduate and Post Graduate levels. The advent of liberalization in economy and the big boom in IT sector have opened the door of opportunity in global job market to those who have good communication skills, computer skills, and industry related skills, apart from strong domain knowledge in the core subjects. The conventional curriculum offered in the form of B.A., B.Com and B.Sc., courses does not impart requisite skills relevant to the dynamic job market especially that of industries like IT and ITES. The Department felt the urgency of imparting skill-based training to students so as to bridge the skill deficit of students and enable them seize the employment opportunities available in the job market.

The Government of Andhra Pradesh established Jawahar Knowledge Centres (JKCs) - the modern finishing school in Government Degree Colleges across the state of Andhra Pradesh to impart training in employability skills with a special curriculum. These centers aim at providing training in employability skills and placement assistance to those students studying conventional courses in Degree Colleges of Andhra Pradesh.

The unique feature of JKC is its training programme which is designed to help students develop confidence, communicative competency and grow as professionals. The curriculum includes communication skills, soft skills, analytical skills, technical skills, ethical values and general awareness. Each JKC conducts training in three batches per year with duration of three months each. The 250 hour training imparted by the trained Mentors helps in mentoring the graduate students as Employable graduates.

As the JKC acts as a finishing school, every JKC student comes out as a polished product with improved dynamism and confidence levels. It is no exaggeration to say that the JKCs are successful in enabling the rural students compete with their urban counterparts by bridging the urban-rural divide. In addition to the regular training in employability skills, JKC also provides placement assistance by conducting on-campus recruitment drives.

JKC Monitoring Cell (JKCMC) at the Commissionerate of Collegiate Education, AP, Hyderabad focuses on overall coordination by organizing workshops and training programmes. It acts as an interface between industry and academia and plays a vital role in enforcing the effective functioning of the project.

The department approached Centre for Innovations in Public Systems (CIPS), Hyderabad (An Autonomous Organization Funded by Government of India) to evaluate JKCs in terms of the achievements in the stated objectives and to suggest suitable recommendations for strengthening the programme. The CIPS, in its evaluation report, appreciated the initiative and the results thereon, and made a few recommendations. One of the recommendations of the CIPS was that Study material could be made available to the JKC students in the form of printed books.

The Commissionerate of Collegiate Education in its efforts to implement CIPS recommendations has taken up the task of preparing study material (Communication Skills, Soft Skills, Analytical Skills and Computer Skills) for the students and a manual for teachers by inviting well-experienced teachers in the concerned areas.

I wish to express my gratitude to the Government of Andhra Pradesh for their unstinted support to the department in effectively running the JKCs.

I hope that this attempt will enhance students' enthusiasm and sustain their interest in the course leading to qualitative outcome. I also hope that this endeavor will strengthen our resolve to take up many more such initiatives in future in serving the student community.

K. Sunitha, IAS
Commissioner of Collegiate Education
Government of Andhra Pradesh
Hyderabad

Introduction

Analytical Skills occupy a very important place in any competitive examination today. Testing of Analytical Skills assesses a candidate's basic competitive skills and the ability to reason mathematically.

Analytical skills generally help to visualize, gather information, articulate, analyze, solve complex problems, and make decisions. Numerical reasoning ability is one of the most basic skills involving evaluating situations and drawing conclusions from the data provided to assess one or several of the following:

- Critical thinking ability
- Basic or general arithmetic operations
- Ability to perform estimates
- Ability to analyze graphs and other data
- Level of speed in making analysis or assessments
- Level of concentration in solving problems

Usually, numerical thinking skills are measured using one or several of the following methods:

- Arithmetic
- Graph interpretation
- Manipulating data
- Patterns and relevant information
- Table interpretation

This book is a self help manual that familiarizes students with basic mathematical concepts and enables them to apply such concepts to a variety of calculation based problems. This section is divided into 12 units and covers a wide range of topics. Fundamental principles are explained with the help of easy to understand examples. Practice exercises at the end of each topic are aimed at refining the problem solving skills. The scope and content of the subject matter is designed to suit short courses such as the one included in the JKC training. The mentors may explore the scope of the each chapter and give additional information and more illustrations to provide the students with a competitive edge. The students of JKC may have to understand that this study material helps only to broadly understand the analytical skills and that they need to do more practice to effectively face the competition.

It is hoped that this first and humble attempt would match the expectations of the JKC students to a large extent. Improvements will be made in the subsequent editions. The suggestions made by the readers will be received wholeheartedly and will be used for further improvements in the content as well as in the other areas. The authors wish the JKC students, Mentors and Teachers all success in their efforts.

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Section -1

ARITHMETIC

UNIT- 1 to 7

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1.1 BODMAS

BODMAS

In Mathematics and Computer programming the order of operations is a rule used to clarify which procedures should be performed first in a given mathematical expression. The original order of operations in most countries was BODMAS which stand for Brackets, Of, Division, Multiplication, Addition, Subtraction.

Learning Objectives

- Know and understand the order of priority of operation to be performed.
- Know that the same priorities apply to algebra also.

Solved Problems

1. $4 \times (7 - 3) / (5 + 3) + 8$?

   We first calculate the brackets $(7 - 3) = 4$ and $(5 + 3) = 8$ to give $4 \times 4 / 8 + 8$
   We now divide 4 by 8 to give ½ and so we get: $4 \times ½ + 8$
   Now we multiply 4 by ½ to give 2 and We get: $2 + 8 = 10$.
2. Calculate the following: $(9 + 1) \times (5 - 2) + 8/2 - 3$
   First we evaluate the brackets:
   $(9 + 1) \times (5 - 2) + 8/2 - 3 = 10 \times 3 + 8/2 - 3$
   Then we divide: $10 \times 3 + 8/2 - 3 = 10 \times 3 + 4 - 3$
   Next we multiply: $10 \times 3 + 4 - 3 = 30 + 4 - 3$
   Next we add: $30 + 4 - 3 = 34 - 3$
   Finally, we subtract: $34 - 3 = 31$

Exercise

1) ½ of $2 + 4 =$
2) ¾ of $12 - 8 =$
3) $2 + 20 \div 2 =$
4) $8 - 3 \times 2 =$
5) $4 \div (10 - 2) =$
6) $10 - 3 \times 2 =$
7) $5 + 6 \times 2 + (9 \times - 2) =$
8) $8 \div 4 - 2 \times 5 =$
9) $10 \div 2 + 9 \div - 3 =$

10) 12 – 8 + 5 x 2 =

11) (½ + ¾) of 12 ÷ 3 x 2 + 5 – 2 =

12) (1 – ½) of 20 ÷ 2 x 10 + 20 – 2 =

13) 11 – (5 – 1) + ½ of 6 – 10 ÷ 5 – 11 =

14) 11 – ¾ of 24 ÷ (5 + 1) x – 2 – 15 =

15) 5 – 10 x – 3 – 5 + 20 ÷ – 2 =

16) 17 – 5 x – 3 + ¼ of 4 – 18 =

17) – 11 – 5 (8 – 10) – ½ of 40 =

18) (½ + ¼) of 4/5 ÷ 2/5 x 4/5 – 1/10 =

19) 3 – ½ of 4/7 + 5/7 x 14/35 =

20) 3/5 x – ½ + ½ of ¾ - 1/8 ÷ 5/8 =

ANSWERS :

Question no.	1	2	3	4	5
Answer	5	1	11	2	$\frac{1}{2}$
Question no.	6	7	8	9	10
Answer	4	-1	-8	2	14
Question no.	11	12	13	14	15
Answer	$\frac{11}{2}$	$\frac{37}{2}$	-3	$-\frac{5}{2}$	20
Question no.	16	17	18	19	20
Answer	15	-21	$\frac{71}{40}$	3	$-\frac{1}{8}$

1.2 FRACTIONS & DECIMALS

Introduction

Fractions represent parts of a whole. The upper part of a fraction is called the numerator, while the lower part of a fraction is called the denominator. The denominator states how many total parts the whole has been divided into. The numerator states how many of those parts are being represented by the fraction.

Fractions are converted into decimals and there by one can identify and compare any of the given numbers

Learning Objectives

The student will be able to:

- Define fraction, numerator, denominator, fraction bar, unit fraction, and multiple.
- Identify the number of shaded parts and the number of equals' parts in a shape (circle, rectangle).
- Identify a fraction by comparing the number of shaded parts to the number of equal parts.
- Define decimal, proper and improper fraction, mixed fraction, whole number, fraction, place value, expanded form, decimal digits and equivalent decimals.
- Identify the integral part and fractional part of a decimal.
- Identify the purpose of using decimals.
- Recognize that the decimal point is used to separate the integral part from the fractional part.

SOLVED PROBLEMS

1. Which of the following fractions is the smallest?

   a) 13/16 b) 15/19 c) 17/21 d)7/8

   Answer: b) 15/19

2. The expression $(11.98 \times 11.98 + 11.98 \times x + 0.02 \times 0.02)$ will be perfect square of x then find the value of x?

   Explanation:

   $(11.98)^2 + (0.02)^2 + 11.98 \times x$

   $= (11.98)^2 + (0.02)^2 + 11.98 \times 2\,(0.02)$

   $= (11.98 + 0.02)^2$

   $x = 0.04$

3. $0.7683 + 0.369 + 0.05 + 0.8 = ?$
   Answer: 1. 9873
4. The value of 0.575757… is:.
   (a) 57/10 (b) 26/45 c) 57/99 (d) 52/99
   Answer: 57/99
5. Which of the following series is in ascending order.
   (a) 3/5, 7/9, 6/7 (b) 7/9, 6/7, 3/5 (c) 7/9, 3/5, 6/7 (d) 6/7, 7/9, 3/5
   Answer: 6/7, 7/9, 3/5
   Explanation: Convert each in decimal form and you will get answer
6. 0.393939... is equivalent to the fraction:
   (a) 39/100 (b) 93/100 (c) 39/99 (d) None
   Answer: 39/99
7. Which of the following fractions is less than 7/8 and greater than 1/3 ? .
   (a) 1/4 (b)11/12 (c) 23/24 (d) 17/24
   Answer: 17/24
8. On simplification 1/0.04 is equal to:
   (a) 2.5 (b) 2/5 (c) 25 (d) 1/40
   Answer: (c) 25
9. 5463 + 546.3 - 54.63 / ? = 5999.3.
   (a) 0.05463 (b) 5.463 (c) 0.5463 (d) None
   Answer: (b) 5.463
10. 4.8438 / 0.069.
   (a) 60.2 (b) 69.2 (c) 70.2 (d) 71.2
   Answer: (c) 70.2

Exercise

1) Which of the following series is in ascending order
   (a) 5/6, 6/8, 7/9, 11/13 (b) 11/13, 5/6, 7/9, 6/8
   (c) 6/8, 7/9,5/6, 11/13 (d) 11/13, 7/9, 6/8, 5/6
2) The valu of $(3.75 \times 3.75 - 2 \times 3.75 \times 2.75 + 2.75 \times 2.75)$ is.
   (a) 1 (b) 4.75 (c) 1.75 (d) 6.5
3) $3 \times 0.3 \times .03 \times 0.003 \times 30 = ?$.
   (a) 0.0000243 (b) 0.00243 (c) 0.000243 (d) 0.0243
4) If $1.125 \times 10^k = 0.001125$, then the value of k is:
   (a) -4 (b) -2 (c) -3 (d) -1

5) $7.5 \times 0.9 \times 14.4$ is equal to: .

(a) 48.6 (b) 97.2 (c) 91.4 (d) 94.95

6) $18.2 \times 0.013 \times 5.21$ is equal to:.

(a) 12.32686 (b) 1.232686 (c) 123.2686 (d) 0.1232686

7) $(25.732)^2 - (15.732)^2$.

(a) 414.64 (b) 4146.4 (c) 41.464 (d) 4.1464

8) 852.2109 + 106.78 - 59.157 = ?.

(a) 899.8339 (b) 899.9833 (c) 889.8339 (d) None

9) Which of the following fraction is arranged in ascending order of their value?

a) 1/4, 2/7, 3/4, 4/7, 5/7, 6/5 b) 1/4, 2/7, 4/7, 5/7, 3/4, 6/5

c) 2/7, 1/4, 4/7, 3/4, 5/7, 6/5 d) 2/7, 1/4, 4/7, 5/7, 3/4, 6/5

10) Which of the following fraction is the largest?

a) 8/9 b) 18/23 c) 16/21 d) 14/17

ANSWERS

Question No.	1	2	3	4	5
Answer	C	A	B	C	B
Question No.	6	7	8	9	10
Answer	B	A	A	B	A

Solved Problems

1) Which of the following fraction is greater than 4/5 and less than 6/7?

a) 2/3 b) 3/4 c) 5/6 d) 10/11

Solution :

We have to find X such that $4/5 < X < 6/7$

Converting each fraction into decimal form, we get:
4/5 = 0.8, 6/7 = 0.85
We have to find the fraction which is greater than 0.8and less than 0.85. Now,
2/3 = 0.66, 3/4 = 0.75 , 5/6 = 0.83, 10/11 = 0.91

Clearly, 0.83 lies between 0.8 and 0.85. Required fraction is 5/6.

2) Which of the following fraction does not lie between 5/6 and 8/15?

a) 2/3 b) 3/4 c) 4/5 d) 6/7

Solution :

Converting each of the given fractions into decimal form, we get,

5/6 = 0.83, 8/15 = 0.53, 2/3 = 0.66, 3/4 = 0.75, , 4/5 = 0.8, 6/7 = 0.85

Clearly, 0.85 does not lie between 0.83 and 0.53 Hence the required fraction is 6/7.

Exercise

1) $7.5 \times 0.9 \times 14.4$ is equal to:
2) $5463 + 546.3 - 54.63 / ? = 5999.3$.
3) The expression$(11.98 \times 11.98 + 11.98 \times x + 0.02 \times 0.02)$ will be perfect square of x if x equal to
4) $(25.732)^2 - (15.732)^2$.
5) Which of the following fractions is the smallest? .
   13/16, 15/19, 17/21, 7/8
6) On simplification 1/0.04 is equal to: .
7) If $1.125 \times 10^k = 0.00115$, then the value of k is: .
8) $3 \times 0.3 \times 0.03 \times 0.003 \times 30 = ?$.
9) $0.7683 + 0.369 + 0.05 + 0.8 = ?$

10) The valu of $(3.75 \times 3.75 - 2 \times 3.75 \times 2.75 + 2.75 \times 2.75)$ is.

11) 852.2109 + 106.78 - 59.157 = ?.

12) Which of the following fractions is less than 7/8 and greater than 1/3 ? .

1/4 , 11/12 , 23/24 , 17/24

13) Which of the following series is in ascending order

(a) 5/6 , 6/8, 7/9, 11/13 (b) 11/3,5/6,7/9,6/8

(c) 6/8,7/9, 5/6,11/3 (d) 11/13, 7/9, 6/8, 5/6

14) 1 4.8438 / 0.069.

(a) 60.2 (b) 69.2 (c) 70.2 (d) 71.2

15) $18.2 \times 0.013 \times 5.21$ is equal to:.

(a) 12.32686 (b) 1.232686 (c) 123.2686 (d) 0.1232686

ANSWERS

Question No.	1	2	3	4	5
Answer	97.2	5.463	0.04	414.64	15/19
Question No.	6	7	8	9	10
Answer	25	-3	0.00243	1.9873	1
Question No.	11	12	13	14	15
Answer	899.8339	1/4	Third	70.2	second

1.3 ALGEBRAIC FORMULAE

1). $(a+b)^2 = a^2 + 2ab + b^2$; $a^2 + b^2 = (a+b)^2 - 2ab$

2). $(a-b)^2 = a^2 - 2ab + b^2$; $a^2 + b^2 = (a-b)^2 + 2ab$

3). $(a+b+c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca)$

4). $(a+b)^3 = a^3 + b^3 + 3ab\,(a+b)$; $a^3 + b^3 = (a+b)^3 - 3ab\,(a+b)$

5). $(a-b)^3 = a^3 - b^3 - 3ab\,(a-b)$; $a^3 - b^3 = (a-b)^3 + 3ab\,(a-b)$

6). $a^2 - b^2 = (a+b)(a-b)$

7). $a^3 - b^3 = (a-b)(a^2 + ab + b^2)$

8). $a^3 + b^3 = (a+b)(a^2 - ab + b^2)$

9). $a^n - b^n = (a-b)(a^{n-1} + a^{n-2}b + a^{n-3}b^2 + \cdots + b^{n-1})$

10). $a^n = a.a.a \ldots n\ times$

11). $a^m.a^n = a^{m+n}$

12). $\frac{a^m}{a^n} = a^{m-n}$ if m > n

$= 1$, if m = n

$= \frac{1}{a^{n-m}}, if\ m < n$

13). $(a^m)^n = a^{mn} = (a^n)^m$

14). $(ab)^n = a^n.b^n$

15). $\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$

16). $a^0 = 1$ where $a \in R$, $a \neq 0$

17). $a^{-n} = \frac{1}{a^n}$, $a^n = \frac{1}{a^{-n}}$

18). $a^{\frac{p}{q}} = \sqrt[q]{a^p}$

19). If $a^m = a^n\ and\ a \neq \pm 1, a \neq 0\ then\ m = n$

20). If $a^n = b^n$ where $n \neq 0, then\ a = \pm b$

Solved Problems

Below are four algebraic problems by using the formula $(x+y)^2 = (x^2 + y^2 + 2xy)$ and $(x-y)^2 = (x^2 + y^2 - 2xy)$.

1. If sum of the two numbers is 55/22 and the product of these numbers is 1 then what will be the sum of the squares of these numbers?

Solution : Let a and b be the two numbers

Given that, $a + b = 55/22 = 5/2$

And $ab = 1$

we have to find sum of their individual squares.

i.e., $a^2 + b^2$

Then from $(x + y)^2 = (x^2 + y^2 + 2xy)$

$(5/2)^2 = a^2 + b^2 + 2(1)$

$25/4 = a^2 + b^2 + 2$

$17/4 = a^2 + b^2$

Hence the required answer is 17/4.

2. If the difference of two numbers is 6 and the sum of their squares is 468 then find the product of these numbers.

Solution: Let x and y be the numbers.

Given that, $x - y = 6$ and $x^2 + y^2 = 468$

We have to find xy.

From $(x - y)^2 = (x^2 + y^2 - 2xy)$

$6^2 = 468 - 2xy$

$36-468 = -2xy$

$432 = 2xy$

$xy = 216$

Hence the required product is 216.

3. Find the value of the sum of the squares of two integers and the square of their difference, when the sum of their individual squares is 45.

Solution : Let x and y be two integers.

Given that, $x^2 + y^2 = 45$

Square of sum of them $= (x + y)^2$

Square of their difference $= (x - y)^2$

we have to find, $(x + y)^2 + (x - y)^2$

We know that, $(x + y)^2 = (x^2 + y^2 + 2xy)$....(1)

$(x - y)^2 = (x^2 + y2 - 2xy)$....(2)

Adding (1) and (2),

$(x + y)^2 + (x - y)^2 = 2[x^2 + y^2]$

$(x + y)^2 + (x - y)^2 = 2[45] = 90$

Hence the required answer is 90.

4. If the difference of the squares of the sum of two numbers and the difference of these numbers is 624 then the product of these numbers is:

Solution : Let x and y be the numbers.

Square of sum of them = $(x + y)^2$

Square of their difference = $(x - y)^2$

Given that, $(x + y)^2 - (x - y)^2 = 624$

we have to find xy .

We know that, $(x + y)^2 - (x - y)^2 = 4xy$

$624 = 4xy$.

$xy = 156$

Hence the required product is 156.

1.4 DIVISIBILITY RULES

Learning Objectives

After reading this unit a student will learn –

- Divisibility rules
- Formulas on summations
- Face value and place value of numbers.

Important Results

Divisibility by...	Rule	Example	Explanation
2	Unit's digit of the number should be zero or divisible by 2.	4, 2, 102, etc.	
3	Sum of the digits in the number should be divisible by 3.	1782	1+7+8+2 = 18 which is divisible by 3 hence 1782 also divisible by 3.
4	Number formed by the last two digits should be divisible by 4 or are both zero.	4784, 300, etc.	4784 → Since 84 is divisible by 4, 4784 is also divisible by 4.
5	Unit's digit of the number should be 0 or 5.	120, 625, etc.	
6	Should satisfy divisibility rules of 2 and 3.	4518	
7	The unit digit of the given number is doubled and then it is subtracted from the number obtained after omitting the unit digit. If the result is divisible by 7, then the given number is also divisible by 7.	448	448 → 44 – 8(2) = 44 – 16 = 28 which is divisible by 7 and hence 448 is also divisible by 7.
8	Number formed by the last three digits should be divisible by 8. or zero's	1576	1576 → 576 is divisible by 8 and hence 1576 is also divisible by 8.
9	Sum of the digits in the number should be divisible by 9.	1395	1395 → 1+3+9+5 = 18 is divisible by 9 and hence 1395 is also divisible by 9.
10	Number should end in zero.	1000	
11	Sum of digits at odd places – Sum of digits at even places should be 0 or divisible by 11.	38797	38797 → Sum of digits at odd places = 3+7+7 = 17 Sum of digits at odd places = 8+9 =17 and 17 – 17 =0, hence 38797 is divisible by 11.
12	Should satisfy divisibility rules of 3 and 4.	156	156 is divisible by 2 and 3 hence 156 is also divisible by 12.

Divisibility by...	Rule	Example	Explanation
14	Should satisfy divisibility rules of 2 and 7.	322	322 is divisible by 2 and 7 hence 322 is also divisible by 14.
25	Last two digits in the number should be 0 or divisible by 25.	175	175 → 75 is divisible by 25 and hence 175 is also divisible by 25.
125	Last three digits in the number should be 0 or divisible by 125.	2250	2250 → 250 is divisible by 125 and hence 2250 is also divisible by 125.

1. The average of first n natural numbers is $\frac{n+1}{2}$.
2. The average of squares of natural numbers till n is $\frac{(n+1)(2n+1)}{6}$.
3. The average of cubes of natural numbers till n is $\frac{n(n+1)^2}{4}$.
4. The average of odd numbers from 1 to n is $\frac{(last\ odd\ number\ +1)}{2}$
5. The average of even numbers from 1 to n is $\frac{(\text{last even number} + 2)}{2}$
6. If n is odd: The average of n consecutive numbers, consecutive even numbers or consecutive odd numbers is always the middle number.
7. If *n* is even: The average of n consecutive numbers, consecutive even numbers or consecutive odd numbers is always the average of the middle two numbers.
8. The average of first n consecutive even numbers is (n + 1).
9. The average of first n consecutive odd numbers is n.
10. The average of squares of first n consecutive even numbers is $\frac{2(n+1)(2n+1)}{3}$.

11. The average of squares of consecutive even numbers till n is $\frac{(n+1)(n+2)}{3}$.

12. The average of squares of consecutive odd numbers till n is $\frac{n(n+2)}{3}$.

Note: The face value of any digit is itself, but place value is obtained as below

Place value of units digit = unit digit x 1
Place value of tens digit = tens digit x 10
Place value of hundred's digit = (hundred's digit) X 100

Solved Problems

1. Find the difference between the place value and face value of 6 in the numeral 556973

   Face value of 6 = 6
   Place value of 6 = 6 X 1000 = 6000
   Difference = 6000 – 6 = 5994

2. Find the difference between the place values of two sevens in the numeral 69758472
   700000 – 70 = 699930

3. Find 287 X 287 + 269 X 269 - 2 X 287 X 269 =?
   $(287)^2 + (269)^2 - 2 \times 287 \times 269 = (287-269)^2 = 18^2 = 324$

1.5 LCM & HCF

Introduction

LCM: When adding, subtracting, or comparing vulgar fractions, it is useful to find the least common multiple of the denominators, often called the lowest common denominator, because each of the fractions can be expressed as a fraction with this denominator.

HCF: In mathematics, the greatest common divisor (gcd), also known as the greatest common factor (gcf), highest common factor (hcf), or greatest common measure (gcm), of two or more integers (at least one of which is not zero), is the largest positive integer that divides the numbers without a remainder.

Learning Objectives

After reading this unit a student will learn to –

- Calculate LCM and HCF.
- Calculate LCM of fractions.

Definitions

LCM : Least Common Multiple

HCF/GCD : Highest Common Factor / Greatest Common Divisor

LCM of two or more numbers is the product of the highest powers of all the prime factors that occur in these numbers.

HCF of two or more numbers is the product of highest (maximum) number of common factors in the given numbers.

Solved Problems

1. Find the L.C.M. of 12, 15, 18 and 20.

2	12,	15,	18,	20
2	6,	15,	9,	10
3	3,	15,	9,	5
5	1,	5,	3,	5
	1,	1,	3,	1

So, the L.C.M. = 2 x 2 x 3 x 5 x 3 = 180

2. Find the H.C.F. of 50 and 70

Sol: 50 = 2 x 5 x 5
70 = 2 x 5 x 7
Common factors are 2 and 5.
So, H.C.F. = 2 x 5 = 10

3. Find LCM and HCF of Rs.2, Rs.2.40 Paise, Rs.3.20paise

(Hint : Rs.2 = 200p, Rs.2.40 = 240p, Rs.3.20 = 320p)

Important Formulae

1. L.C.M. and H.C.F. of fractions

$$\text{L.C.M.} = \frac{\text{L.C.M. of the numbers in numerators}}{\text{H.C.F. of the numbers in denominators}}$$

$$\text{H.C.F.} = \frac{\text{H.C.F. of the numbers in numerators}}{\text{L.C.M. of the numbers in denominators}}$$

2. Product of two numbers = L.C.M. of two numbers x H.C.F. of two numbers.
3. To find the greatest number that will exactly divide a, b and c, simply find the H.C.F. of a, b and c.
4. To find the greatest number that will divide x, y and z leaving remainders a, b and c respectively, find the H.C.F. of (x - a), (y-b) and (z - c).
5. To find the least number which is exactly divisible by a, b and c, simply find the L.C.M. of a, b and c.
6. To find the least number when divided by a, b and c leaving remainders x, y and z respectively, find the (L.C.M. of a, b and c) – k, where k = (a – x) = (b – y) = (c – z).

Solved Problems

1. Find the greatest number that will exactly divide 200 and 320?

Sol: The required number = H.C.F. of 200 and 320 = 40.

2. Find the H.C.F. of 3332, 3724.

Sol:

```
3332)3724(1
     3332
      392)3332(8
          3136
           196)392(2
               392
                X
```

So, the H.C.F. of 3332, 3724 is 196.

3. Find the greatest number that will divide 148 , 246, 623 leaving remainders 4, 6, 11 respectively.

Sol: Required number = HCF of (x - a), (y-b) (z - c).
= (148-4, 246-6, 632-11)
= 144, 240 , 612
HCF of 144 , 240, 612
HCF of 144, 240 = 48
HCF of 48, 612 = 12
Ans : 12

4. Find the greatest number that will divide 1375, 4935 leaving in each case same remainder 3 ?

Sol: Req number = 1375 – 3, 4935 – 3
= 1372, 4932
HCF of 1372, 4932 is 4

5. Four bells first begin to toll together and then at intervals of 6, 7, 8, 9 seconds. Find how many times the bells toll together in two hours and at what intervals they toll together?

Sol: Interval = LCM of 6, 7, 8, 9
= 504seconds
All the bells toll together after each interval of 504 seconds.

No of times They all toll together in two hours = $\frac{2x60x60}{504}$ = 14times

6. Find the least number which when divided by 27, 35, 45, 49 leaves the remainder 6 in each case?

Sol: LCM of 27, 35, 45, 49 = 6615
Req Number = 6615 +6 = 6621

7. Find the least number which when divided by 36, 48, 64 leaves the remainders 25, 37, 53 respectively?

Sol: LCM of 36-25, 48 – 37, 64-53 => K = 11
LCM of 36, 48, 64 = 576
Req Number: 576-11 = 565

8. Find the greatest possible length of a scale that can be used to measure exact the length of cloth 3m, 5m, 10m, 12m 90cm ?

(Hint: Find HCF of 300cm, 500cm 1000cm, 1290cm)

9. Find LCM & HCF of
$\frac{4}{5}, \frac{5}{6}, \frac{7}{15}$

$$L.C.M. = \frac{\text{L.C.M. of the numbers in numerators}}{\text{H.C.F. of the numbers in denominators}}$$

$$= \frac{\text{L.C.M of } 4, 5, 7}{\text{HCF of } 5, 6, 15} = \frac{140}{1} = 140$$

$$HCF = \frac{H.C.F \text{ of the numbers in numerators}}{L.C.M \text{ of the numbers in denominators}} = \frac{H.C.F \text{ of } 4,5,7}{L.C.M \text{ of } 5,6,15} = \frac{1}{30}$$

10. If HCF, LCM of two numbers are 16, 240. If one number is 48 find the other?

Sol: $16 \times 240 = 48 \times x$

$$x = \frac{16 \times 240}{48.} = 80$$

Second Number = 80

Exercise

1. Find LCM of 28, 35, 56, 84 using division method?
2. Find LCM and HCF of 36, 48, 64, and 72
3. Find LCM and HCF of 200, 240, 320?
4. Find HCF of 2m 28cms, 3m 24cms and 4m 86cms
5. Find LCM and HCF of 6hrs 4mins, 2hrs 42mins
6. An electronic device makes a beep after every 60 sec. Another device makes a beep after every 62 sec. They beeped together at 10 a.m. Find at what time they will next make a beep together at the earliest.
7. Find the largest number which divides 25, 73 and 97 to leave the same remainder in each case.
8. The traffic lights at three different road crossings change after every 48 sec, 72 sec and 108 sec respectively. If they all change simultaneously at 8 : 20 : 00 hours, then when will they again change simultaneously?
9. What is the greatest number of three digits which when divided by 6, 9 and 12 leaves a remainder of 3 in each case.
10. Six bells commence tolling together and toll at intervals of 2, 4, 6, 8, 10 and 12 seconds respectively. In 30 minutes, how many times do they toll together?

ANSWERS

Question No.	**1**	**2**	**3**	**4**	**5**
Answer	**840**	**576,4**	**4800,40**	**6m**	**29484, 2**
Question No	**6**	**7**	**8**	**9**	**10**
Answer No	***10.31 am***	**24**	***8 : 27: 12 hrs***	**975**	**16**

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2.1 RATIO & PROPORTION

Introduction

Real life applications of ratio and proportion are numerous! When you prepare recipes, paint your house, or repair gears in a large machine or in a car transmission, you use ratios and proportions. A ratio is one thing compared to or related to another thing; it is just a statement or an expression. A proportion is two ratios that have been set equal to each other; a proportion is an equation that can be solved.

Learning Objectives

After reading this unit a student will learn –

- How to compute and compare two ratios.
- Effect of increase or decrease of a quantity on the ratio.
- What is proportion?
- Properties of proportion and how to use them.

Ratio:

A ratio is a comparison of two numbers (quantities) by division. The ratio of a to b is written as a: b or $\frac{a}{b}$

PROPORTION:

A Proportion is an expression which states that two ratios are equal.

For ex $\frac{3}{12} = \frac{1}{4}$ or 3:12:: 1 : 4

Each quantity in proportion is called term or proportional. If $\frac{a}{b} = \frac{c}{d}$ then a : b and c : d are said to be in proportion and denoted by a : b = c : d or a : b : : c : d

The 1st and last terms in a proportion namely a and d are called extremes and second and third terms namely b and c are called means.

a, b, c, d are in proportion if product of means = product of extremes (ad = bc)

a is called 1st proportional

b is called 2nd proportional

c is called 3rd proportional

d is called 4th proportional

Continued proportion:

Three quantities a, b, c are said to be in continued proportion if a : b = b : c $\Rightarrow b^2 = ac$ a, b, c are in continued proportion if $b^2 = ac$ or $b = \sqrt{ac}$ where b is called mean proportion between a and c i.e. between 1st and 3rd quantities.

Short cuts

1. If $a : b = n_1 : d_1$ and $b : c = n_2 : d_2$, then

$$\boxed{a : b : c = (n_1 \times n_2) : (d_1 \times n_2) : (d_1 \times d_2)}$$

Ex: 1. A: B 3: 4, B: C = 5 : 6 find A : B : C

$a : b : c = (n_1 \times n_2) : (d_1 \times n_2) : (d_1 \times d_2)$

$= 3 \times 5 : 4 \times 5 : 4 \times 6 = 15 : 20 : 24$

If a: b = 3: 13 b : c = 2 : 11 find A :B : C (Ans. 6: 26: 143)

2. If $a : b = n_1 : d_1$ and $b : c = n_2 : d_2$ and $c : d = n_3 : d_3$, then

$$\boxed{a : b : c : d = (n_1 \times n_2 \times n_3) : (d_1 \times n_2 \times n_3) : (d_1 \times d_2 \times n_3) : (d_1 \times d_2 \times d_3)}$$

Ex: 1. If A : B = 2 : 3 B : C = 4 :5 C : D = 9 : 7 find A : B : C :D

$a : b = n_1 : d_1$ and $b : c = n_2 : d_2$ and $c : d = n_3 : d_3$

Then a:b:c:d = $2 \times 4 \times 9 : 3 \times 4 \times 9 : 3 \times 5 \times 9 : 3 \times 5 \times 7 = 72 : 108 : 135 : 105$

Ex: 2.If A : B = 3:5, B : C = 7 :2, C : D = 1 : 8 find A : B : C :D

$a : b = n_1 : d_1$ and $b : c = n_2 : d_2$ and $c : d = n_3 : d_3$

Then a:b:c:d = $3 \times 7 \times 1 : 5 \times 7 \times 1 : 5 \times 2 \times 1 : 5 \times 2 \times 8 = 21 : 35 : 10 : 80$

Solved Problems

1) Find the fourth proportional to 5, 6, and 150

Let the fourth proportional be x

5: 6:: 150 : x or 5 : 6 = 150 : x

$X = \frac{6 \times 150}{5} = 180$

Fourth proportional = 180

2) Find the mean proportional of 0.2 and 0.8

Mean proportional between a and c is

$b = \sqrt{ac} = \sqrt{0.2x0.8} = \sqrt{0.16} = 0.4$

3) Find third proportional to 16 and 24

16: 24 = 24: c

=> product of means = product of extremes

24 x 24 = 16 x c

$C = \frac{24 \times 24}{16} = 36$

4) In a ration which is equal to 3: 7, if the antecedent is 33 then what is the consequent?

Let consequent be x 3: 7 = antecedent: consequent = 33: x

$3: 7 = 33: x \Rightarrow \frac{7 \times 33}{3} = 77$

5) The ratio between number of boys and girls is 2: 5. If there are 350 students in the school find the number of girls in the school?

Ratio of number of boys and girls = 2: 5

Total number of students = 350

$\text{No. of Boys} = \frac{\text{ratio term for Boys}}{\text{Total sum of Ratio}} \times \text{Total no. of students}$

$= \frac{2}{2+5} \times 350 = 100.$

$\text{No. of Girls} = \frac{\text{ratio term for Girls}}{\text{Total sum of Ratio}} \times \text{Total no. of students} = \frac{5}{2+5} \times 350$

$= 250$

Exercise

1. If three numbers are in the ratio 3 : 2: 5 be such that the sum of their squares is 1862,find the middle number.

2. What number should be added to each of the numbers 8, 21, 13 and 31 so that the resulting numbers, in this order form a proportion

3. A sum of money is to the divided among P, Q and R in the ratio of 2 : 3 : 5. If the total share of P and R together is Rs 400 more than that of Q, what is R's share in it?

4. What number should be subtracted from both the terms of the ratio 15: 19 so as to make it as 3: 4 ?

5. If 15% of x is the same as 20% of y, then find x : y ?

6. Rs. 120 are divided among A, B, C such that A's share is Rs. 20 more than B's and Rs. 20 less than C's. What is B's share ?

7. The ratio of income of A to that of B is 5 : 4 and the expenditure of A to that of B is 3: 2. If at the end of the year, each saves Rs. 800, then what is the income of A ?

8. Pencils, Pens and Exercise books in a shop are in the ratio of 10: 2 : 3. If there are 120 pencils, find the number of exercise books in the shop.

9. An alloy is to contain copper and zinc in the ratio 9 :4. Then find the amount of zinc required (in kg) to be melted with 24 kg of copper.

10. In a bag, there are coins of 25 p, 10 p and 5 p in the ratio of 1: 2: 3. If there is Rs. 30 in all, how many 5 p coins are there?

ANSWERS

Question No.	1	2	3	4	5
Answers	14	5	500	3	4:3
Question No.	6	7	8	9	10
Answers	20	2000	36	*10 and 2/3*	150

2.2 PERCENTAGES

Learning Objectives

After reading this unit a student will learn to –

- calculate specified percent of a given number or a quantity;
- solve problems based on percentage;
- solve problems based on profit and loss;
- calculate the discount and the selling price of an article, given marked price of the article and the rate of discount.

Important Points

1. Cent means hundred and Percent is denoted by %, x% means $\frac{x}{100}$
2. Fraction $\frac{a}{b}$ in terms of percent is $\frac{a}{b}$ x 100%

   Ex. *Express* $\frac{2}{3}$ *as percentage* $= \frac{2}{3} x100 = 66\frac{2}{3}\%$
3. Express 0.4 as percentage (Ans. 40%)
4. Express 1.23 as percentage = 1.23 x 100% => 123%
5. Express $22\frac{1}{2}$ as percentage (Ans. 9/40%)
6. Find 10% of 5% of 320?

   $\frac{10}{100} x \frac{5}{100} x320 = \frac{8}{5}$
7. 125% of 64 (Ans. 80)
8. 36 is what % of 144?

   Let us suppose x% of 144 = 36

   $\frac{x}{100} X144 = 36 \Rightarrow x = \frac{36 \times 100}{144} = 25$
9. 2.5 is 5% of what? (Ans. 50)
10. If P_1 % and P_2% of a number N are x_1 and x_2 respectively. Then

    $1. N = \left[\frac{x_1 - x_2}{p_1 - p_2} \times 100\right]$

2. $\frac{x_1}{P_1} = \frac{x_2}{P_2} = \frac{N}{100}$

Ex:If 15% of a number is 60 then what is 25% of the number?

P1 = 15, x1 = 60 P2 = 25 x2 =?

$\frac{x_1}{P_1} = \frac{x_2}{P_2}$ => $\frac{60}{15} = \frac{x2}{25}$

=> $x_2 = 4 \times 25 = 100$

11. If N_1 exceeds N_2 by P% then N_2 is shorter than N_1 by

$$\left[\frac{100 \times P}{100 + P}\right]\%$$

12. If N_1 short of N_2 by P% then N_2 exceeds N_1 by

$$\left[\frac{100 \times P}{100 - P}\right]\%$$

Ex: A number A exceeds B by 25% by what percent is B short of A? % by which B is short of A

$$\left[\frac{100 \times 25}{100 + 25}\right]\% = \left[\frac{100 \times 25}{125}\right]\% = 20\%$$

Ex: A number X is short of Y by 40% then by what percent is Y excess of X? Y is excess of X by

$$\left[\frac{100 \times P}{100 - P}\right]\% = \left[\frac{100 \times 40}{100 - 40}\right]\% = \left[\frac{100 \times 40}{60}\right]\% = 66\frac{2}{3}\%$$

Ex: If A is short of B by 30% then B is excess of A by what percent?

13. If a number N is increased by P% then the number after increase is

$$N \times \left[\frac{100 + P}{100}\right]\%$$

14. If a number N is decreased by P% then the number after decrease is $N \times \left[\frac{100 - P}{100}\right]\%$

Ex: In 2011 the total enrolment in a school was 1500. Next year it is increased by 10% then what is the enrolment in 2012?

P% = 10% N = 1500

Enrolment in 2012 $= N \times \left[\frac{100+P}{100}\right] = 1500 \times \left[\frac{100+10}{100}\right]$

$= 1500 \times \left[\frac{110}{100}\right] = 1650$

15. If a number N is increased by P% and then decreased by P% or 1st decreased by p% and then increased by p% then original number N decreases by $\left(\frac{P}{10}\right)^2$ % in both the cases.

Ex: When the price of a pressure cooker was increased by 15% sale of pressure cookers decreased by 15%. What was the net effect on the sales?

P% = 15%, p = 15

Overall effect on sales $= \left(\frac{p}{10}\right)^2 \% \Rightarrow \left(\frac{15}{10}\right)^2 \% \Rightarrow \left(\frac{1.5}{}\right)^2 \%$

=> 2.25% decrease

16. The two split parts of N such that one part is P% of the other are

$$\left[\frac{100}{100+P}\right] \times N \text{ and } \left[\frac{P}{100+P}\right] \times N$$

Ex: Split 42 into two parts such that one is 2% of the other.

$$\left[\frac{100}{100+P}\right] \times N = \left[\frac{100}{100+2}\right] \times 42 = \frac{2100}{51}$$

And

$$\left[\frac{P}{100+P}\right] \times N = \left[\frac{2}{100+2}\right] \times 42 = \frac{42}{51}$$

Ex: If the price of coffee is increased by 3% by how much % must a housewife reduce her Consumption of coffee, so as to have no extra expenditure?

$$\% \text{ decrease in consumption} = \left[\frac{100 \times P}{100+P}\right]\% = \left[\frac{100 \times 3}{100+3}\right]\% = \frac{300}{103}\% = 2\frac{94}{103}$$

Ex: The price of milk increases by 20%. If a housewife wants to spend the same amount of money then how much % she must reduce her consumption?

Exercise

1. The daily wage is increased by 15% and a person now gets Rs.203 per day. What is his daily wage before increase?

2. If A's salary is 20% below B's salary then by how much percent is B's salary above A?

3. If man's wages are increased by 10% and then decreased by 10% then, what is the total change in percent?

4. Two students appeared at an examination. One of them secured 9 marks more than the other and his marks was 56% of the sum of their marks. The marks obtained by them

5. A fruit seller had some apples. He sells 40% apples and still has 420 apples. Originally, how many fruits he had?

6. Two numbers A and B are such that the sum of 5% of A and 4% of B is two-third of the sum of 6% of A and 8% of B. Find the ratio of A : B

7. A student multiplied a number by $\frac{3}{5}$ instead of $\frac{5}{3}$ What is the percentage error in the calculation?

8. In an election between two candidates, one got 55% of the total valid votes, 20% of the votes were invalid. If the total number of votes was 7500, the number of valid votes that the other candidate got, was:

9. Rajeev buys goods worth Rs. 6650. He gets a rebate of 6% on it. After getting the rebate, he pays sales tax @ 10%. Find the amount he will have to pay for the goods.

10. The population of a town increased from 1,75,000 to 2,62,500 in a decade. The average percent increase of population per year is?

ANSWERS

Question Nos	1	2	3	4	5
Answers	20	25%	1% decrease	42, 33	700
Question Nos	6	7	8	9	10
Answers	4 : 3	64%	2700	6876.10	5%

2.3 PROFIT AND LOSS

Learning Objectives

After reading this unit a student will learn to –

- solve problems based on profit and loss;
- calculate the discount and the selling price of an article, given marked price of the article and the rate of discount;

Important Points

I. If an article is purchased at Rs C and it is sold at Rs S.

If S > C then gain = S – C
If S< C then Loss = C – S

$$\% \text{ of gain} = \frac{\text{Gain} \times 100}{\text{C.P.}}$$

$$\% \text{ Loss} = \frac{\text{Loss} \times 100}{\text{C.P.}}$$

II. If an article purchased at Rs. C is sold at Rs s_1 and Rs. s_2, gain or loss x_1 incurred on s_1 and gain or loss x_2 incurred on s_2 then

1. $\frac{s_1}{100+x_1} = \frac{s_2}{100+x_2}$ 2. $C = \left(\frac{s_1 - s_2}{x_1 - x_2}\right) \times 100$

III. If two different articles are sold at same price such that

a) One article incurs a gain or loss of x_1 % and other article incurs a gain or loss of x_2 % then overall gain % or loss % is

$$\left(100 - \frac{2(100+x_1)(100+x_2)}{(100+x_1)+(100+x_2)}\right)\%$$

b) If the S.P. of two articles is same and one article incurs a gain of x% and other article incurs a loss of x% then overall effect is

$$\text{Loss } \% = \left(\frac{x}{10}\right)^2 \%$$

IV. If selling price of N_1 articles is equal to cost price of N_2 articles then % loss or gain % is

$$\left[\frac{No\,of\ articles\ on\ CP\text{-}No\,of\ articles\ on\ SP}{No\,of\ articles\ on\ SP}\right] X\ 100\%$$

If it is –ve then there is **Loss,** **if it is +ve then there is gain**

Solved Problems

1. If C.P = 120 S.P = 90 then what is Loss%?

Loss = C.P – S.P = 120-90 = 30

$$\text{Loss\%} = \frac{Loss \times 100}{C.P.} = \frac{30 \times 100}{120.} = 25\%$$

2. By selling an article for Rs.450 a man loses 25%. At what price he will sell in order to gain 25%?

$$\frac{s_1}{100 - x_1} = \frac{s_2}{100 + x_2}$$

$$\Rightarrow \frac{450}{100 - 25} = \frac{s_2}{100 + 25} \qquad \Rightarrow \frac{450}{75} = \frac{s_2}{125}$$

$$s_2 = \frac{450}{75} \times 125 = 750$$

3. By selling 100 mangoes a fruit seller gains cost price of 20 mangoes. Find his loss %?

No of articles on S.P = $N_1 = 100$

No of articles on C.P = $N_2 = 20$

$$\text{Effect is loss \%} = \left(\frac{N_2 - N_1}{N_1}\right) \times 100 = \left(\frac{20 - 100}{100}\right) \times 100 = 80\%$$

4. A man sold two steel chairs for Rs. 500 each on one he gains 20% and on other he loses 12%. How much does he gain or loss in the whole transaction?

$$\text{Overall gain\% or loss\%} = \left(100 - \frac{2(100 + x_1)(100 + x_2)}{(100 + x_1) + (100 + x_2)}\right)\%$$

$$= \left(100 - \frac{2(100 + 20)(100\text{-}12)}{(100 + 20) + (100\text{-}12)}\right)\% \quad (x_1 = 20,\ x_2 = 12)$$

$$= \left(100 - \frac{2(120)(88)}{(120) + (88)}\right)\%$$

$$= -1.5\% \text{ loss}$$

Since the output is –ve overall effect = Loss and %Loss = 1.5

5. Two articles were sold at Rs.480 each. On one a gain of 20% is made and on the other a loss of 20%. How much % loss or gain% is made in the whole transaction?

Since $s_1 = s_2$ and $p_1 = p_2 = 20$

Overall effect is loss and % of loss $= \left(\frac{20}{10}\right)^2 \% = 4\%$

6. Raghu bought 4 dozen oranges at Rs 12 per dozen and 2 dozen oranges at Rs 16 per dozen. He sold them all to earn 20% profit. At what price per dozen did he sell the oranges?.

Answer: 16
Explanation:
Total CP = $(12\times4 + 16 \times2) = 80$
SP of 6 dozen oranges = $[(120/100) \times 80)] = 96$
sell price per dozen =16

7. A sells a bicycle to B at a profit of 20 % and B sells it to C at a profit of 25 %. If C pays Rs 1500, what did A pay for it ?.
Answer: *Rs 1000*
Explanation:
125% of 120% of A = 1500
$[(125/100) \times (120/100) \times A] = 1500$.
$A = [1500 \times (2/3)] = 1000$.

8. Ajay bought 15 kg of dal at the rate of Rs 14.50 per kg and 10 kg at the rate of Rs 13 per kg. He mixed the two and sold the mixture at the rate of Rs 15 per kg. What was his total gain in this transaction ?
Answer: *Rs 27.50*
Explanation:
Cost price of 25 kg = Rs. (15 x 14.50 + 10x 13) = Rs. 347.50.
Sell price of 25 kg = Rs. (25 x 15) = Rs. 375.
profit = Rs. (375 — 347.50) = Rs. 27.50.

9. Bhajan Singh purchased 120 reams of paper at Rs 80 per ream. He spent Rs 280 on transportation, paid octroi at the rate of 40 paise per ream and paid Rs 72 to the coolie. If he wants to have a gain of 8 %, what must be the selling price per ream?.
Answer: *90*
Explanation:
Total investment = Rs. $(120 \times 80 + 280 + (40/100) \times 120 + 72)$.
= Rs. $(9600 + 280 + 48 + 72)$ = Rs. 10000.
Sell price of 120 reams = 108% of Rs. 10000 = Rs. 10800.
Sell Price per ream = Rs. [10800/120] = Rs. 90.

10. An article when sold at a gain of 5% yields Rs 15 more than when sold at a loss of 5%. What is the C.P..
Answer: *Rs 150*
Explanation:
Let the CP is x then [(105x/100) - (95x/100)] = 15 or x = 150

11. If the selling price of an article is $\frac{4}{3}$ times its cost price, the profit percent is:.
Answer: 33.33
Explanation:
cost price = x then sell price = 4x/3
gain = (4x/3 - x) = x/3
gain = ((x/3) × (1/x) × 100 = 33.33

12. A producer of tea blends two varieties of tea from two tea gardens one costing Rs 18 per kg and another Rs 20 per kg in the ratio 5 : 3. If he sells the blended variety at Rs 21 per kg, then his gain percent is:.
Answer: 12
Explanation:
Suppose he bought 5 kg and 3 kg of tea.
Cost Price = Rs. (5 x 18 + 3 x 20) = Rs. 150.
Sell price = Rs. (8 x 21) = Rs. 168.
profit % = (18/150) × 100 = 12%

13. Rahim buys mangoes at the rate of 3 kg for Rs 21 and sells them at 5 kg for Rs 50. To earn Rs 102 as profit what must be the no. of mangoes he should buy?
Answer: 34
Explanation:
rate of buying = 7/kg ; rate of selling = 10 to gain 3 Rs he must buy 1 kg
for 102 profit he must buy = (102/3) = 34

Exercise

1. A retailer buys a radio for Rs 225. His overhead expenses are Rs 15. He sells the radio for Rs 300. Find the profit percent of the retailer.
2. A fruit seller purchases oranges at the rate of 3 for Rs 5 and sells them at 2 for Rs 4. Find his profit in the transaction.
3. A person bought 20 litres of milk at the rate of Rs 8 per litre. He got it churned after spending Rs 10 and got 5 kg of cream and 20 litres of toned milk. If he sold the cream at Rs. 30 per kg and toned milk at Rs 4 per litre, find his profit in the transaction
4. A shopkeeper bought an article for Rs 319.60. Approximately, at what price should he sell the article to make 25% profit?.

5. A man sells two houses at the rate of Rs. 1.995 lakh each. On one occasion he gains 5% and on the other, he loses 5%. Then what is his gain or loss percent in the whole transaction?
6. If books bought at prices ranging from Rs 200 to Rs 350 are sold at prices ranging from Rs 300 to Rs 425, what is the greatest possible profit that might be made in selling eight books.
7. By selling 45 lemons for Rs 40, a man loses 20 %. How many should he sell for Rs 24 to gain. 20 % in the transaction ?
8. A man sold 250 chairs and had a gain equal to selling price of 50 chairs. What is his profit percent?
9. Gopal purchased 35 kg of rice at the rate of Rs 9.50 per kg and 30 kg at the rate of Rs 10.0 per kg. He mixed the two. Approximately, at what price per kg should he sell the mixture to make 35 % profit in the transaction?.
10. Vilcas bought paper sheets for Rs 7200 and spent Rs 200 on transport. Paying Rs 600, he had 330 boxes made, which he sold at Rs 28 each. Then what is his profit percentage?

ANSWERS

Question nos.	**1**	**2**	**3**	**4**	**5**
Answers	**25%**	**20%**	*35.3 %*	*400 Rs*	*0.25% loss*
Question nos.	**6**	**7**	**8**	**9**	**10**
Answers	*1800*	**18**	*25 %*	*Rs 13.50*	*15.5*

2.4 PARTNERSHIP

Introduction

Partnership in a business is that where two (or more) partners invest a certain amount (known as capital) for a specific period to carry out the business. At the end of the period (usually one year), the business may generate profit or loss. This profit or loss is divided among the partners in the ratio of their investments. At the end of the chapter, students will understand how to distribute the profit among the investors, the investment made by the investors etc.

Learning Objectives

After reading this unit a student will learn to –

- Understand the meaning of partnership in business
- Solve simple problems on partnership

If A and B are in partnership, at the end of one year (which is convention), the profit or loss would be distributed as:

Profit (or loss) = (Capital invested) × (Period of investment)

Distancing partner : A partner who manages the business is called distancing partner

Sleeping partner : A partner of the business who simply invests the money is the Sleeping partner.

NOTE:

1. When a partner retires during one year period, only the period for which his capital was utilized, is taken into consideration.
2. When a partner joins during the one year period, only the period for which his capital was utilized, is taken into consideration.

Solved Problems

1. A and B started a business in partnership by investing Rs.8000 and Rs.7000 respectively. If at the end of a year, a profit of Rs.22, 500 was earned. What is the share of A?

Solution: Ratio of amount invested by A and B

= 8000: 7000 = 8:7

Profit at the end of the year = Rs.22500

Share of A = 8/15x22500 = 8x1500 = Rs.12000/-

2. In partnership business, A has invested Rs.4200 while B has invested a certain amount. If out of the overall profit of Rs.600, A's share is Rs.320, what is the amount invested by B (in Rs)?

Solution: A's investment = Rs.4200
Overall profit = Rs.600
A's share in profit = Rs.320
∴ B's share in profit=
Rs.600- Rs.320=Rs.280
The ratio of profit of A and B = 320: 280
= 8:7
∴ The amounts invested by A and B will be in the ratio of 8:7
Rs. 4200: B's investment =8:7
B's investment = 7 x 4200 / 8 = Rs.3675

3. Chetan and Suman started a business in partnership by investing Rs.15000 and Rs.18000 respectively. If at the end of the year, Chetan's share in the profit was Rs.1200, what was the amount of total profit?

Solution: If Rs.15000 earns a profit of Rs.1200, then Rs.33000 earn a profit of
33000x1200/15000=2640.

4. In a partnership business, A has invested 2000 for 5months, while B has invested Rs.3500 for a certain period. If out of the total annual profit of Rs.1440, B's share has been Rs.840. For how many months has he kept his investment in the business?

Solution: A has invested Rs.2000 for 5 months

B has invested Rs. 3500 for 'm' months.
Total profit at the end of the year = Rs.1440, B's share in it is= RS.840
A's share in profit = Rs. (1440-840) =Rs.600
The ratio of profit of A and B = 600:840=5:7 The ratio of investment of A and B is the same as that of the profits 2000x5/3500xm = 5/7
∴ m = 7 x 2000 x 5 / 3500 x 5 = 4
Hence, B kept the investment for 4 months only.

Exercise

1. A and B entered into a partnership investing Rs. 16000 and Rs. 12000 respectively.
After 3 months, A withdrew Rs. 5000 while B invested Rs. 5000 more. After 3 more months C joins the business with a capital of Rs. 21000. Then find the share of B which exceeds that of C, out of a total profit of Rs. 26400 after one year .
2. Manoj received Rs. 6000 as his share out of the total profit of Rs. 9000 which he and Ramesh earned at the end of one year. If Manoj invested Rs.120000 for 6 months, whereas Ramesh invested his amount for the whole year, what was the amount invested by Ramesh?.

3. Mohinder and Surinder entered into a partnership investing Rs. 12000 and Rs. 9000 respectively. After 3 months, Sudhir joined them with an investment of Rs. 15000, What is the share of Sudhir in a half yearly profit of Rs. 9500? .
4. Rs. 700 is divided among A, B, C so that A receives half as much as B and B half as much as C. Then C's share is :.
5. Alok started a business investing Rs. 90000. After 3 months Shabir joined him with a capital of Rs. 120000. If at the end of 2 years, the total profit made by them was Rs. 96000, what will be the difference between their shares?
6. A and B started a business jointly. A's investment was thrice the investment of B and the period of his investment was two times the period of investment of B. If B received Rs. 4000 as profit, then their total profit is:
7. Yogesh started a business investing Rs. 45000. After 3 months, Pranab joined him with a capital of Rs. 60000. After another 6 months, Arul joined them with a capital of Rs. 90000. At the end of the year, they made a profit of Rs. 20000. What would be Atuls share in it?.
8. Jayant opened a shop investing Rs. 30000. Madhu joined him 2 months later, investing Rs. 45000. They earned a profit of Rs. 54000 after completion of one year. What will be Madhus share of profit ?.
9. Nirmal and Kapil started a business investing Rs. 9000 and Rs. 12000 respectively. After 6 months, Kapil withdrew half of his investment. If after a year, the total profit was Rs. 4600, what was Kapil's share init?
10. A, B andC enter into a partnership. A initially invests Rs. 25 lakhs and ádds another Rs. 10 lakhs after one year. B initially invests Rs. 35 lakhs aiid withdraws Rs. 10 lakhs after 2 years and C invests Rs. 30 lakhs. In what ratio should the profits be divided at the end of 3 years ?.

ANSWERS

Question Nos	**1**	**2**	**3**	**4**	**5**
Answers	***Rs. 3600***	***Rs. 5000***	***Rs. 2500***	***Rs. 400***	***Rs. 7384***
Question Nos	**6**	**7**	**8**	**9**	**10**
Answers	***Rs. 28000***	***Rs. 4000***	***Rs. 30000***	***Rs. 2300***	***19 : 19 : 18***

2.5 DATA INTERPRETATION AND ANALYSIS

Introduction

Normally facts and the figures are presented in more compact and precise forms such as

- Tables (Known as data tables)
- Charts (Pie, Bar, Pert, etc.)
- Graphs (2D and 3D)
- Diagrams (Geometric or Venn diagram)

Learning Objectives

After reading this unit a student will learn to –

- Study the data given in the form of table and interpret
- Understand the data given in Pie charts
- Understand the data given in Bar diagrams.

Solved Problems

Directions (1-5): study the following table and answer the questions that follow:
The table shows the percentage of unemployed male and female youths and the total population of different states in two years.

State	2008			2009		
	M	F	T	M	F	T
P	11	16	35	9	11	39
Q	9	7	19	10	8	24
R	8	11	25	10	13	41
S	12	6	30	7	7	34
T	7	6	32	5	6	24
U	8	5	26	8	9	35

M- Percentage of unemployed male youth over total population
F- Percentage of unemployed female youth over total population
T- Total population of the state in lakhs.

1) What was the total number of unemployed youths in state Q in 2009?
a) 351000 b) 447000 c) 432000 d) 521000 e) none

(Ans. c) 432000)
The percentage of unemployed male youths in state Q in 2009 is 10% and

The percentage of unemployed female youths in state Q in 2009 is 8%.
Thus, the total number of unemployed youths in 2009 in state Q will be (10+8)
= 18% of the total population.
The total population of state Q in 2009 is 24 lakhs
∴The number of unemployed youths in state Q in 2009:-
18 / 100 x 24 lakhs = 4.32 lakhs = 432000

2) How many female youths were unemployed in state T in 2008?
a) 192000 b) 241000 c) 224000 d) 301000 e) none.
(Ans: a) 192000)
The percentage of unemployed female youths in state T in 2008 is 6%.
The total population of state T in 2008
6 / 100 x 32 lakhs = 1.92 lakhs =192000

3) What was the difference between the no. of unemployed male youths in state s in 2008 and 2009?
a) 109000 b) 122000 c) 212000 d) 98000 e) none.
(Ans. b) 122000)
The number of unemployed male youths in state s in 2008
=12% of 30lakhs
=12/100x30lakhs
= 3.6lakhs= 360000
The no of unemployed male youths in state S in 2009
= 7% of 34lakhs
= 7/100x34lakhs
= 2.38lakhs = 238000
∴ The required difference = 360000 -238000 = 122000.

4) What was the respective ratio of the unemployed male youths in state P in 2008 and state R in 2008
a)11:47 b) 23:49 c) 52:47 d) 2:3 e) none of these.
(Ans : e) none of these)
The no of unemployed male youths in state P in 2008
= 11% of 35lakhs
=11/100x35lakhs
= 3.85lakhs =385000.
The no of unemployed male youths in state R in 2008
= 8% of 25lakhs
= 8/100x25lakhs
=2lakhs =200000
∴ The required ratio = 385000 = 200000 = 77:40
As the answer is not given in any of the assume options, the answer is (2).

5) The no. of unemployed female youths in state (4) u in 2008 is approximately what percent of the no of unemployed female youths in state U in 2009?

a) 20% b) 35% c) 55% d) 40% e) none.

(Ans: d) 40%)

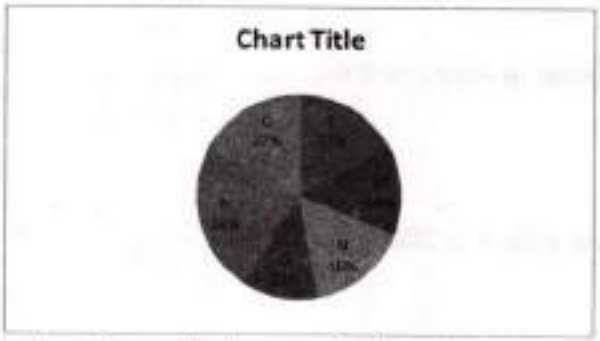
The no of unemployed female youths in state U in 2008 = 5% of 26 lakhs
=5/100x26lakhs= 1.30lakhs -130000.

The no of employed female youths in state U in 2009 = 9% of 35lakhs
=9/100x35lakhs = 3.15lakhs = 315000.

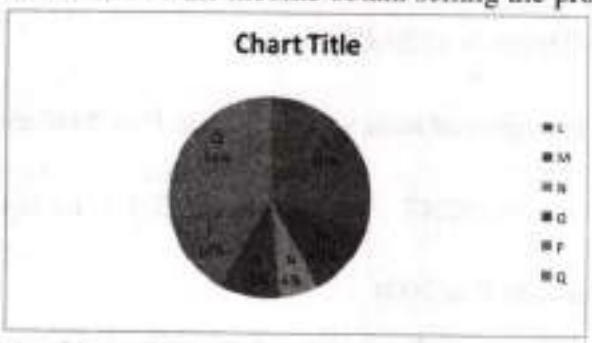
130000 = x/100x315000

X= 130000 x 100 / 315000 = 41.27% = 40%

Directions (Q.no.6-9) : Study the following pie-charts and answer the questions that follow. The pie chart shows the percentage of various products produced.



The following Pie chart shows the income obtain selling the product.



Total income obtained by selling all the products = Rs. 50 million.

6) If the expenditure incurred in production of product N per tone was Rs. 5000, what was the percent profit earned ?

a) 15% b) 25% c) 55% d) 45% e) none of these

7) What is the approximate per selling price of all the six products together ?

a)Rs 14,320 b) Rs. 15770 c)Rs.16670 d) data in adequate e) none of these.

8) Which product has got the highest selling price per tone?

a) product L b) product M c) product N d) product O e) none of these

9) If the quantity of product N produced increased by 20% in the next year and selling price per tone remains the same, then what would be the income generated by selling product N in the next year ?

a) 3000000 b) 2700000 c) 2900000 d) 3600000 e) none of these

Explanation (6-9)

Product	Quantity of Product Produced in Tones	Income obtained By Selling the Product	Income obtained per Tones
L	510	1,50,00,000	Rs. 29,411.76
M	420	60,00,000	Rs. 14,285.71
N	480	30,00,000	Rs. 6,250
O	360	50,00,000	Rs. 13,888.89
P	720	70,00,000	Rs. 9,722.22
Q	510	1,40,00,000	Rs. 27,450.98

6) (b) 25%
The expenditure incurred in production of product N is Rs. 5000 per tone
The income obtained by selling products N per Tone = 3000000/480 = 6250
As can be seen, the profit obtained per tone by selling product N:-
=6250 – 5000 = 1,250.
The required percentage profit :-
1250/5000x100 = 25%

7) © Rs.16670
Total quantity produced=3000 tones
Total income obtained = Rs.50 million
Selling price per tone = 50000000/3000
= Rs 16666.67
~ Rs. 16670

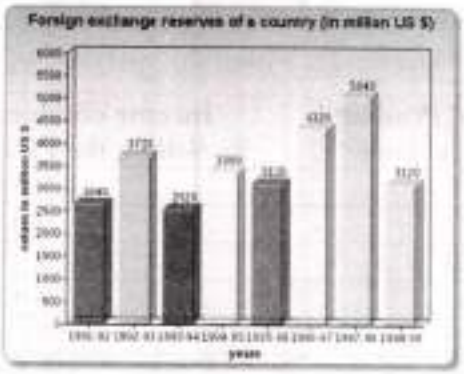
8. a) product L
As can be seen from the table above, the selling price of product Q is Rs. 27450 per tone. As the answer is not given in any of the options.

9. d) Rs. 3600000

The quantity of product N produced = 480 tanned The quantity produced in the next year :
120/100x480 = 576 tones
Per ton selling price of product N remains the same i.e. Rs. 6250.
:. Amount obtained by selling N in the next year =6250 x 576 = 3600000.

Exersise

I. The bar graph given below shows the foreign exchange reserves of a country (in million US $) from 1991-92 to 1998-99. Answer the questions based on graph.



1. The foreign exchange reserves in 1997-98 was how many times that in 1994-95

   a) 1.5 b) 2 c) 3.5 d) 2.6

Answer: Option A

2. What was the percentage increase in the foreign exchange reserves in 1997-98 over 1993-94 ?

   a)80% b) 90% c) 100% d) 110%

Answer: Option C

3. For which year, the percent increase of foreign exchange reserves over the previous year is the highest ?

   a) 1994-95 b) 1995-96 c) 1998-99 d) 1992-93

Answer: Option D

4. The foreign exchange reserves in 1996-97 were approximately what percent of the average foreign exchange reserves over the period under review ?

   a) 80% b)100% c)125% d)130%

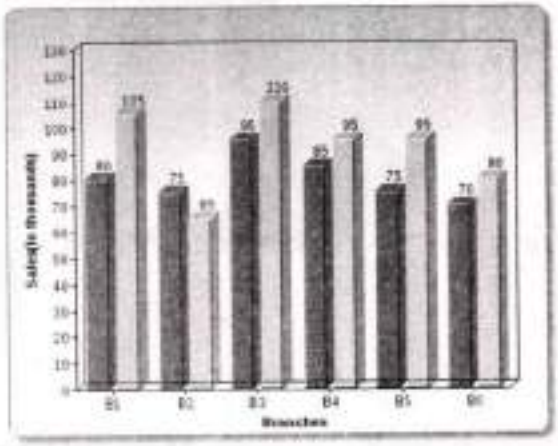
Answer: Option C

5. The ratio of the number of years, in which the foreign exchange reserves are above the average reserves, to those in which the reserves are below the average is:

a) 3:5 b) 2:3 c) 4:7 d) 3:7

Answer: Option A

II. The bar graph provided below gives the sales of books (in thousand numbers) from six branches of a publishing company during two consecutive years 200 and 2001. Answer the questions based on the graph.



6. Total sales of the branches B1, B3 and B5 together for both the years (in thousand numbers) is :

a) 550 b) 560 c) 570 d) 580

Answer: Option B

7. Total sales of branch B6 for both the years is what percent of the total sales of the branch B3 for both the years?

a) 73.17% b) 72.17% c) 71.17% d) 70.17%

Answer: Option A

8. What is the average sale of all the branches (in thousand numbers) for the year 2000 ?

a) 68 b)74 c) 78 d) 80

Answer: Option D

9. What is the ratio of the total sales of branch B2 for both the years to the total sales of the branch B4 for both the years ?

a) 4:9 b) 4:11 c) 7:9 d) 7:11

Answer: Option C

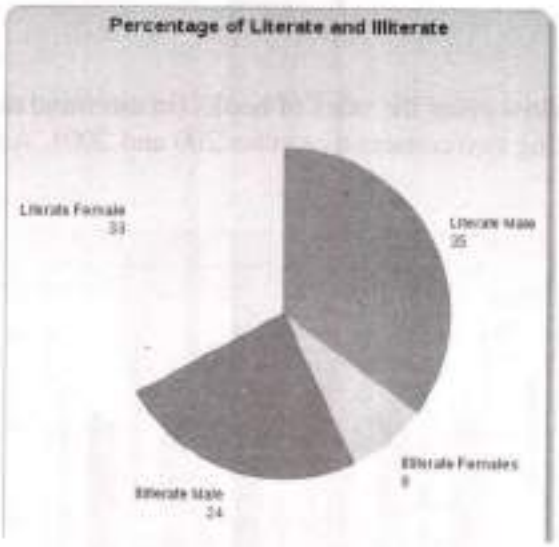
10. What percent of the average sales of branches B1, B2 and B3 in 2001 is the average sales of the branches B1, B3 and B6 in 2000 ?

a) 83.5% b) 87.5% c) 88.5% d) 89.5%

Answer: Option B

Pie Charts

III. The following Pie chart shows the percentage of Literate and Illiterate males and females in a city. Answer the question based on this pie chart.



11. What is the difference between the number of Literate Males and Literate Females, If total number is 2,50,000 ?

a) 3500 b) 4500 c) 5000 d) 6000

Answer: Option C

IV. The following pie chart shows the percentage distribution of the expenditure incurred in publishing a book. Study the pie chart and answer the following questions.

12. What is the central angle of the sector corresponding to the expenditure incurred on Royalty ?

a) 54 degree b) 48 degree c) 45 degree d) 40 degree

Answer: Option A

13. Which two expenditures together have a central angle of 108 degree in pie chart ?

a) Binding cost + Royalty cost b) Printing cost + Paper cost

c) Binding cost + Transportation cost d) Printing cost + Transportation cost

Answer: Option D

14. If the difference between the two expenditures are represented by 18 degree in the pie chart, then which option of following can be correct?

a) Binding cost and Royalty cost b) Paper cost and Printing cost

c) Paper cost and Royalty d) Royalty and Promotion cost

Answer: Option B

15. If for a edition of a book, the cost of paper is Rs. 56250, then find the promotion cost for this edition ?

a) Rs 21500 b) Rs 22300 c) Rs 22500 d) Rs 22700

Answer: Option C

16. If for the certain quantity of books, the publisher has to pay Rs 30,600 as printing cost, then what will be the amount of royalty to be paid for these books ?

a) Rs 22650 b) Rs 22750 c) Rs 22850 d) Rs 22950

Answer: Option D

17. If 5500 copies are published and the transportation cost on them amounts to Rs. 82500, then what should be the selling price of the book so that the publisher can earn a profit of 25 % ?

a) Rs 180.50 b) Rs 182.50 c) Rs 183.50 d) Rs 187.50

Answer: Option D

18. Royalty on the book is less than the printing cost by ?

a) 20% b) 25% c) 30% d) 35%

Answer: Option B

Day	Topic	Page
	Unit-3	
Day 19	3.1 Simple Interest-1	47 - 51
Day 20	3.1 Simple Interest-2	
Day 21	Test-1	
Day 22	3.2 Compound Interest-1	52 - 56
Day 23	3.2 Compound Interest-2	

3.1 SIMPLE INTEREST

Introduction

Any person with a bank account, credit card or bank loan will come across aspects of simple interest and compound interest. However, many people have difficulty in distinguishing between the two types of interest and how they should be calculated.

Learning Objectives

After reading this unit a student will learn to –

- Understand concept of interest, related terms and computation.
- calculate simple interest and the amount, when a given sum of money is invested for a specified time period on a given rate of interest;

When money is loaned, the borrower usually pays a fee to the lender. This fee is called "Interest". Based on the method of calculation of the amount of interest given on the amount lent or borrowed, the interest can be simple interest or compound interest Simple interest or FLAT RATE interest is the amount of interest paid each year in a fixed percentage of the amount borrowed or lent at the beginning.

Important Facts and Formulae

1. Principal: The money borrowed or lent out for a certain period is called the principal or the sum.
2. Interest: Extra money paid for using other's money is called interest.
3. Simple Interest (S.I.): If the interest on a sum borrowed for a certain period is reckoned uniformly, then it is called simple interest.
4. Rate (R): The rate of interest to be paid on the principal per annum.

Let Principal = P, Rate = R% per annum (p.a.) and Time = T years. Then,

(i) $S.I. = (P \times R \times T)/100$
(ii) $P = (100 \times S.I)/(R \times T)$;
(iii) $R = (100 \times S.I)/(P \times T)$ and
(iv) $T = (100 \times S.I)/(P \times R)$

Solved Problems

Ex.1. Given Principal: 'P'=1500 interest rate: 'R' =12% =0.12, Repayment time:'T' = 2 years

Part I: Find the amount of interest paid

Interest='I'= PRT
$= 1{,}500 \times 0.12 \times 2 = 360$

Part II: Find the Total amount to be paid

Total amount to be paid
=Principal + Interest =1,500 + 360 =1,860

Part II: Calculate the Weekly payable amount

$$\text{Weekly payment amount} = \frac{\textit{Total Repayments}}{\textit{Loan Period T in weeks}}$$

$$\text{Weekly payment amount} = \frac{1860}{2x52}$$

= 17.88 per week.

Ex. 2. Find the simple interest on Rs. 30,000 at 16 2/3% per annum for 9 months.

Sol. P = Rs.30, 000,R = 50/3% p.a and
T = 9/12 years = 3/4years.

∴ S.I. = (P×R×T)/100
= Rs. (30,000× (50/3) × (3/4) × (1/100))
= Rs.3750

Ex. 3. Find the simple interest on Rs. 6000 at 6 1/4% per annum for the period from 4th Feb., 2005 to 18th April, 2005.

Sol. Time = (24+31+18) days
= 73 days = 73/365 years
= 1/5 years.

P = Rs.6000 and R = 6 ¼ % p.a = 25/4%p.a

∴S.I. = Rs. (6,000× (25/4) × (1/5) × (1/100)) = Rs.75.

IMPORTANT: The day on which money is deposited is not counted while the day on which money is withdrawn is counted.

Ex.4. A sum borrowed by Augustine at simple interests at 13 ½ % per annum amounts to Rs.2502.50 after 4 years find the sum borrowed by Augustine.

Sol. Let sum be Rs. x then,
S.I.=Rs.(x× (27/2) ×4× (1/100))
= Rs.27x/50
∴Amount = (Rs. x+(27x/50))

$= Rs.77x/50$

$\therefore 77x/50 = 2502.50$

$\Leftrightarrow x = \frac{2502.50}{77} \times \frac{50}{} = 1625$

Hence, sum = Rs.1625.

Ex. 5. If a sum of Rs. 800 amounts to Rs. 920 in 3 years at simple interest and if interest rate is increased by 8%, it would amount to how much?

Sol. S.I. = Rs. (920 - 800) = Rs. 120;

p = Rs. 800, T = 3 yrs.

$R = ((100 \times 120)/(800 \times 3))\ \% = 5\%$.

New rate = (5 + 3)% = 8%.

New S.I. = Rs. $(800 \times 8 \times 3)/100$ = Rs. 192.

New amount = Rs.(800+192) = Rs. 992.

Ex. 6. Prabhakar Rao borrowed some money from Rajaiah at the rate of 6% p.a. for the first two years, at the rate of 9% p.a. for the next three years, and at the rate of 14% p.a. for the period beyond five years. If he pays a total interest of Rs.11,400 at the end of nine years how much money did he borrow ?

Sol. Let the sum borrowed be x.

Then, $(x \times 2 \times 6)/100 + (x \times 9 \times 3)/100 + (x \times 14 \times 4)/100 = 11400$

$\Leftrightarrow (3x/25 + 27x/100 + 14x/25) = 11400$

$\Leftrightarrow 95x/100 = 11400$

$\Leftrightarrow x = (11400 \times 100)/95 = 12000$.

Hence, sum borrowed = Rs.12,000.

Ex.7. If certain sum of money amounts to Rs. 1008 in 2 years and to Rs.1164 in 3 ½ years. Calculate the sum and rate of interest.

Sol. S.I. for 1 ½ years

= Rs.(1164-1008) = Rs.156.

S.I. for 2 years = Rs.$(156 \times (2/3) \times 2)$

=Rs.208

Principal = Rs. (1008 - 208) = Rs. 800.

Now, P = 800, T = 2 and S.I. = 208.

Rate $= (100 \times 208)/(800 \times 2)\% = 13\%$

Ex. 8. What rate percent per annum will make a sum of money double in 16 years.

Sol. Let principal = P.
Then, S.I. = P and T = 16 yrs.
$\therefore$ Rate = $(100 \times P) / (P \times 16)\%$
= 6 ¼ % p.a.

Ex. 9. The simple interest on a sum of money is 4/9 of the principal .Find the rate per cent and time, if both are numerically equal.

Sol. Let sum = Rs. x.
Then, S.I. = Rs. 4x/9 Let rate = R% and time = R years.
Then, $(x \times R \times R)/100 = 4x/9$
or $R^2 = 400/9$ or $R = 20/3 = 6\frac{2}{3}$
$\therefore$ Rate = $6\frac{2}{3}$ % and Time = $6\frac{2}{3}$ years = 6 years 8 months.

Ex.10. A person borrowed an amount with simple interest on a certain sum of money for 2 1/2 years at 12% per annum which is Rs. 40 less than the simple interest on the same sum for 3 ½ years at 10% per annum. Find the sum.

Sol. Let the sum be Rs. x Then, $((x \times 10 \times 7)/(100 \times 2)) - ((x \times 12 \times 5)/(100 \times 2)) = 40$
$\Leftrightarrow (7x/20)-(3x/10)=40$
$\Leftrightarrow x = (40 \times 20) = 800.$
Hence, the sum is Rs. 800.

Ex.11. Srinivas invested a sum put at simple interest at a certain rate for 3 years. Had it been put at 2% higher rate, it would have fetched him Rs. 360 more. Find the sum.

Sol. Let sum = P and original rate = R.
Then, $[(P \times (R+2) \times 3)/100] - [(P \times R \times 3)/100] = 360.$
$\Leftrightarrow 3PR + 6P - 3PR = 36000 \Leftrightarrow 6P=36000 \Leftrightarrow P=6000$
Hence, sum = Rs. 6000.

Ex.12. What annual installment will discharge a debt of Rs. 1092 due in 3 years at 12% simple interest by a ?.

Sol. Let each Installment be Rs. x

Then, $(x + ((x \times 12 \times 1)/100)) + (x + ((x \times 12 \times 2)/100)) + x = 1092$

$\Leftrightarrow ((28x/25) + (31x/25) + x) = 1092 \Leftrightarrow (28x+31x+25x)=(1092 \times 25)$

$\Leftrightarrow x = (1092 \times 25)/84 =$ Rs.325.

$\therefore$ Each installment = Rs. 325.

Ex. 13. A sum of Rs. 1550 is lent out to Rammurthy to pay into two parts, one at 8% and another one at 6%. If the total annual income is Rs. 106, find the money lent at each rate.

Sol. Let the sum lent at 8% be Rs. x and that at 6% be Rs. $(1550 - x)$.

$\therefore ((x \times 8 \times 1)/100) + ((1550-x) \times 6 \times 1)/100 = 106$

$\Leftrightarrow 8x + 9300 - 6x = 10600 \Leftrightarrow 2x = 1300 \Leftrightarrow x = 650.$

$\therefore$ Money lent at 8% = Rs. 650. Money lent at 6% = Rs. (1550 - 650) = Rs. 900.

Exercise

1. Avinash borrowed Rs. 5000 from Sanjay at simple interest. After 3 years, Sanjay got Rs. 300 more than what he had given to Avinash. What was the rate of interest per annum ‘?.
2. The simple interest on a certain sum of money at the rate of 5% p.a. for 8 years is Rs. 840. At what rate of intrest the same amount of interest can be received on the same sum after 5 years ?
3. If A lends Rs. 3500 to B at 10% p.a. and B lends the same sum to C at 11.5% p.a., then the gain of B (in Rs.) in a period of 3 years is:.
4. In what time will Rs. 500 give Rs. 50 as interest at the rate of 5% p.a. S.I. ?.
5. Rakesh took a loan for 6 years at the rate of 5% p.a. S.I. If the total interest paid was Rs. 1230, the principal was:.
6. A certain sum of money lent out at S.I. amounts to Rs. 690 in 3 years and Rs. 750 in 5 years. The sum lent is:.
7. At the rate of 6% p.a. simple interest, a sum of Rs. 2500 will earn how much interest by the end of 5 years 7.
8. The rate at which a sum becomes four times of itself in 15 years at S.I. will be:.
9. Rs. 800 amounts to Rs. 920 in 3 years at simple interest. If the interest rate is increased by 3%, it would amount to how much ?.
10. A person borrowed Rs. 500 at the rate of 5% per annum S.1. What amount will he pay to clear the debt after 4 years 7
11. Prabhat took a certain amount as a loan from a bank at the rate of 8% p.a. S.I. and gave the same amount to Ashish as a loan at the rate of 12% p.a. If at the end of 12 years, he made a profit of Rs. 320 in the deal, what was the original amount?.
12. Ashok took a loan of Rs. 15000 for 3 years at simple interest. If the total interest paid is R. 2700, what is the rate of interest per annum?.
13. The interest on a certain deposit at 4.5% p.a. is Rs. 202.50 in one year. How much will the additional interest in one year be on the same deposit at 5% p.a. ?.
14. Satish took a loan at 10% p.a. S.I. After 4 years, he returned the principal along with the inlerest. If he returns in all Rs. 3500, what is the principal amount?.
15. A sum of money at simple interest amounts to Rs. 2240 in 2 years and to Rs. 2600 in 5 years. What is the principal amount?.

ANSWERS

Question Nos.	1	2	3	4	5
Answers	*2%*	*8%*	*157.50*	*2 years*	*Rs. 4100*
Question Nos.	**6**	**7**	**8**	**9**	**10**
Answers	*Rs. 600*	*Rs. 750*	*20%*	*Rs. 992*	*Rs. 600*
Question Nos.	**11**	**12**	**13**	**14**	**15**
Answers	*Rs. 666.67*	*6%*	*Rs. 2500*	*Rs. 2500*	*Rs. 2000*

3.2 COMPOUND INTEREST

Learning Objectives

After reading this unit a student will learn to –

- illustrate the concept of compound interest vis-a-vis simple interest;
- calculate compound interest, the amount and the difference between compound and simple interest on a given sum of money at a given rate and for a given time period
- solve real life problems pertaining to rate of growth and decay, using the formula of compound interest, given a uniform or variable rate.

Compound Interest: When the borrower and the lender agree to fix up a certain unit of time, say *yearly* or *half-yearly* or *quarterly* to settle the previous amount. In such cases, the amount after first unit of time becomes the principal for the second unit, the amount after second unit becomes the principal for the third unit and so on.

After a specified period, *the difference between the amount and the money borrowed is called the* Compound *Interest* C.I.

IMPORTANT FACTS AND FORMULAE

Principal = P, Rate = R% per annum, Time = n years.

I. When interest is compound Annually:
Amount = $P(1+R/100)^n$

II. When interest is compounded Half-yearly:
Amount = $P[1+(R/2)/100]^{2n}$

III. When interest is compounded Quarterly:
Amount = $P[1+(R/4)/100]^{4n}$

IV. When interest is compounded annually but time is in fraction, say 3(2/5) years.
Amount = $P(1+R/100)^3 \times (1+(2R/5)/100)$

V. When Rates are different for different years, say R 1%, R2%, R3% for 1st, 2nd and 3rd year respectively.

Then, Amount = $P(1+R_1/100)(1+R_2/100)(1+R_3/100)$

Solved Problems

Ex.1. *Calculate the compound interest* on the amount borrowed *Rs. 7500* at 4% *per* annum *for* 2 *years, compounded* annually.

Sol.

Amount = Rs $[7500 \times (1+(4/100)^2]$
= Rs $(7500 \times (26/25) \times (26/25))$
= Rs. 8112.
C.I. = Rs. (8112 - 7500) = Rs. 612.

Ex. 2. *Calculate the compound interest* on *Rs. 8000* at 15% *per* annum *for* 2 *years* 4 *months, compounded annually.*

Sol.

Time = 2 years 4 months

= 2(4/12) years = 2(1/3) years.

Amount = Rs. $[8000 \times (1+(15/100))^2 \times (1+((1/3) \times 15)/100)]$

=Rs.$[8000 \times (23/20) \times (23/20) \times (21/20)]$

= Rs. 11109.
∴ C.I. = Rs. (11109 - 8000) = Rs. 3109.

Ex.3. Find the compound interest on Rs. 10,000 in 2 years at 4% per annum, the interest being compounded half-yearly.

Sol.

Principal = Rs. 10000;
Rate = 2% per half-year;
Time = 2 years = 4 half-years.
Amount = Rs $[10000 \times (1+(2/100))^4]$
= Rs$(10000 \times (51/50) \times (51/50) \times (51/50) \times (51/50))$

= Rs. 10824.32.

∴ C.I. = Rs. (10824.32 - 10000)

= Rs. 824.32.

Ex. 4. Find the compound interest on Rs. 16,000 at 20% per annum for 9 months, compounded quarterly.

Sol.

Principal = Rs. 16000;
Time = 9 months =3 quarters
Rate = 20% per annum = 5% per quarter.
Amount = Rs. $[16000 \times (1+(5/100))^3]$

= Rs. 18522.
CI = Rs. (18522 - 16000) = Rs. 2522.

Ex. 5. If the simple interest on a sum of money at 5% per annum for 3 years is Rs. 1200, find the compound interest on the same sum for the same period at the same rate.

Sol.

Clearly, Rate = 5% p.a., Time = 3 years, S.I.= Rs. 1200.

. . principal=RS $[100 \times 1200]/3 \times 5$=RS 8000

Amount = Rs. 8000 x $[1 + 5/100]^3$

= Rs. 9261.

C.I. = Rs. (9261 - 8000) = Rs. 1261.

Ex. 6. In what time will Rs. 1000 become Rs. 1331 at 10% per annum compounded annually?
Sol.

Principal = Rs. 1000; Amount = Rs. 1331; Rate = 10% p.a.
Let the time be n years.
Then,
$[1000 (1 + (10/100))^n] = 1331$
or $(11/10)^n = (1331/1000) = (11/10)^3$
n = 3 years.

Ex. 7. If Rs. 500 amounts to Rs. 583.20 in two years compounded annually, find the rate of interest per annum.

Sol

Principal = Rs. 500;
Amount = Rs. 583.20; Time = 2 years.
Let the rate be R% per annum.
Then, $[500 (1+(R/100)^2] = 583.20$
or
$[1 + (R/100)]^2 = 5832/5000$
$= 11664/10000$
$[1 + (R/100)]^2 = (108/100)^2$
Or
$1 + (R/100) = 108/100$ or $R = 8$
So, rate = 8% p.a.

Ex. 8. The difference between the compound interest and simple interest on a certain sum at 10% per annum for 2 years is Rs. 631. Find the sum.

Sol. Let the sum be Rs. x.
Then, C.I. = $x (1 + (10/100))^2 - x$
$= 21x / 100$,

S.I $= ((x \times 10 \times 2) / 100) = x / 5$

$(C.I) - (S.I) = ((21x / 100) - (x / 5))$

$= x / 100$

$(x / 100) = 631 \Rightarrow x = 63100.$

Hence, the sum is Rs.63,100.

Ex.9. The difference between the compound interest and the simple interest accrued on an amount of Rs. 18,000 in 2 years was Rs. 405. What was the rate of interest p.a. ? (Bank P.O. 2003)

Sol.

Let the *rate* be R% p.a. then,

$[18000\{1 + (R / 100)\}^2 - 18000] - ((18000 \times R \times 2) / 100) = 405$

$18000[(100 + (R / 100)^2 / 10000) - 1 - (2R / 100)] = 405$

$18000[((100 + R)^2 - 10000 - 200R) / 10000] = 405$

$9R^2 / 5 = 405$

$\Rightarrow R^2 = ((405 \times 5) / 9) = 225$

$R = 15.$

Rate = 15%.

Ex.10.What annual payment will discharge a debt of Rs.7620 due in 3years at 16 2/3% per annum interest?

Sol.

Let each installment be Rs.x.

Then,(P.W. of Rs. x due 1 year hence)+(P.W. of Rs. x due 2 years hence)+(P.W of Rs. X due 3 years hence)=7620.

$\therefore x/(1+(50/3\times100))+ x/(1+(50/3\times100))^2 + x/(1+(50/3\times100))^3=7620$

$\Leftrightarrow(6x/7)+(936x/49)+(216x/343)=7620. \quad \Leftrightarrow294x+252x+216x=7620\times343.$

$\Leftrightarrow x= (7620\times343/762)=3430.$

$\therefore$Amount of each installment=Rs.3430.

Exercise

1. What is the principal amount which earns Rs. 132 as compound interest for the .second year at 10% per annum?.
2. The amount of Rs. 7500 at compound interest at 4% per annum for 2 years, is:.
3. If the amount is 2 and 1/4 times the sum after 2 years at compound interest, the rate of interest per annum,.
4. If the difference between the compound interest, compounded half yearly and.the simple interest on a sum at 10% per annum for one year is Rs. 25, the sum is :.

5. The difference in compound interest and simple interest on a certain amount at 10% per annum at the end of the third year is Rs. 620. What is the principal amount?.
6. The compound interest on a certain sum at 5% per annum for 2 years is Rs. 328. The simple interest for that sum at the same rate and for the same period will be :.
7. A man borrowed Rs. 800 at 10% per annum simple interest and immediately lent the whole sum at 10% per annum compound interest. What does he gain at the end of 2 years?.
8. In how many years will a sum of Rs. 800 at 10% per annum compounded. semi-annually become Rs. 926.10?
9. If the simple interest on a sum of money at 5% per annum for 3 years is Rs. 1200, the compound interest on the same sum for the same period at the same rate, is :.
10. On what sum of money' will the simple interest for 3 years at 8% perannum be half of the compound interest on Rs. 400 for 2 years at 10%per annum ?.
11. A sum of money at compound interest amounts to thrice itself in 3 years. In how many years will it be 9 times itself.
12. The difference between the compound interest and the simple interest on a sum of money for 2 years at 12 % per annum is Rs. 150. The sum is :.

ANSWERS

Question Nos.	**1**	**2**	**3**	**4**	**5**	**6**
Answers	***Rs. 1200***	***Rs. 8112***	***50%***	***Rs. 10000***	***Rs. 20000***	***Rs. 320***
Question Nos.	**7**	**8**	**9**	**10**	***11***	***12***
Answers	***Rs. 8***	***1 and 1/2***	***Rs 1261***	***Rs. 175***	***6***	***Rs. 9600***

Day	Topic	Page
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Day 25	4.2 Problems on Ages-1	
Day 26	4.2 Problems on Ages-2	

4.1 AVERAGES AND PROBLEMS ON AGES

INTRODUCTION

This chapter enables the student how a single value (average) will represent a list of values such as marks, heights, ages etc. and comparison of the other values with the median (average).
An average is a very simple but effective way of representing an entire group by a single value.

LEARNING OBJECTIVES

After reading this unit a student will learn to –

- Understand the meaning of average
- Properties of average
- Solve some simple problems on average.

Definition: Average of a group is defined as sum of all items in the group / no of Items in the group.

Basics:

If the value of each item is increased by the same value 'p' then the average of the group or items will also increase by p.
If the value of each item is multiplied by the same value 'p' then the average of the group or items will also be multiplied by 'p'.
If the value of each item is divided by the same value p (p#0), then the average of the group or items will also be divided by p
The average of group of items will always lie between the smallest value in the group and largest value in the group i.e., the average will be grater than the smallest value and less than the largest value in the group.
There are four different means.

1) Arithmetic mean
2) Harmonic mean
3) Geometric mean
4) Weighted mean

Solved Problems

1. Find the average of all prime numbers between 30 and 50.

Solution :

The prime numbers between 30 and 50 are : 31,37,41, 43 and 47

∴ Required average

= 31+37+41+43+47/5 =199/5 =39.8

2. The average age of a class of 39 students is 15 years if the age of the teacher be included, then the average increases by 3 months. Find the age of the teacher.

Solution:

Total age of 39 persons = (39x15) years

= 585 years

Average age of 40 persons

= 15 years 3months

=61/4 years

Total age of 40persons = 61/4x40 years

= 610 years

Age of the teacher = (610-585) years

= 25 years.

3. Distance between two stations A and B is 778 km. Han covers the journey from A to B at 84 km per hour and returns back to A with a uniform speed of 56 km per hour. Find his average speed during the whole journey.

Solution :

Required average speed

= 2xy/x+y km/hr (harmonic mean)

= 2x84x56 / 84+56 km/hr

= (2x84x56) /140 km/hr

= 67.2 km/hr.

4. A batsman makes a score of 87 runs in the 17th innings and these increases his average by 3. find the average after 17th innings.

Solution :

Let the average after 17th innings =x

Then, Average after 16th innings = (x-3) ∴ 16 (x-3) + 87 = 17x

=> x = 87-48=39

4.2 PROBLEMS ON AGES

1. The average age of the husband, his wife and their son ten years ago was 25 years and that of the husband and wife six years ago was 37 years. What is the present age of son (in years) ?

Solutions :

Total of present ages of husband, wife and son = (25x3) +10+ 10 +10

= 105 years.

Average age of husband and his wife six years ago was 37 years.

Total of present ages of husband and wife = (37x2) +6 +6 = 86 years.

∴Son's present age = 105 – 86

= 19 years.

2. The average age of A and B is 30 years. If c were to replace A, the average age would be 40 years and if he were to replace B, the average age would be 35years. What is A's age?

Solution :

Average age of A and B = 30 years

Total age of A and B = 30x2 = 60 years

Average age of B and C = 40 years

Total age of B and C = 40x2= 80 years

Total age of A and c = 35x2 = 70 years

After adding (1) and (3) we get

2 A + B + C = 130

But we know that (B+C) = 80

∴ 2A + 80 = 130

A = 130 – 80/2 = 25 years.

Hence, a' s age is 25 years.

Exercise

1. The average of Kanchan's marks in 7 subjects is 75. His average in six subjects excluding Science is 72. How many marks did he get in Science?
2. The average age of boys in the class is twice the number of girls in the class. If the ratio of boys and girls in the class of 36 be 5 : 1, what is the total of the ages (in years) of the boys in the class.

3. The average of eight numbers is 14. The average of six of these numbers is 16. The average of the remaining two numbers is:
4. Five years ago, the average age of A, B, C and D was 45 years. With E joining them now, the average of all the five is 49 years. How old is E?
5. The mean of $1^2, 2^2, 3^2, 4^2, 5^2, 6^2, 7^2$ is:.
6. The average weight of 3 men A, B and C is 84 kg. Another man D joins the group and the average now becomes 80 kg. If another man F, whose weight is 3 kg more than that of D, replaces A then the average weight of B, C, D and E becomes 79 kg. The weight of A is:.
7. Three years ago, the average age of a family of 5 members was 17 years. A baby having been born, the average age of the family is the same today . The present age of the baby is:
8. The average of 50 numbers is 38. If two numbers, namely 45 and 55 are discarded, the average of the remaining numbers is :.
9. The average of 11 observations is 60. If the average of first five observations is 58 and that of the last five is 56, then the sixth observation is.
10. In seven given numbers, the average of first four numbers is 4 and that of the last four numbers is also 4. If the average of these seven numbers is 3, the fourth number is :.
11. If a, b, c, d, e are five consecutive odd numbers, their average Is:
12. A motorist travels to a place 150 km away at an average speed of 50 km per hour and returns at 30 km per hour. His average speed for the whole journey in km per hour is :.
13. The average of two numbers is M. If one number is N, then the other number is.
14. The mean of 100 observations was calculated as 40. It was found later on that one of the observations was misread as 83 instead of 53. The correct mean is :.
15. Five years ago, the average age of P and Q was 15 years. Average age of P, Q and R today is 20 years. How old will R be after 10 years?.
16. In a cricket eleven, the average of eleven players is 28 years. Out of these, the average ages of three groups of three players each are 25 years, 28 years and 30 years respectively. If in these groups, the captain and the youngest player are not included, and the captain is eleven years older than the youngest player, what is the age of the captain ?.
17. The average age of a committee of eight members is 40 years. A member aged 55 years retired and his place was taken by another member aged 39 years. The average age of the present committee is:.
18. The average weight of 9 mangoes increases by 20 g if one of them weighing 120 g is replaced by another. The weight of the new mango is :.
19. The average age of 40 student of a class is 15 year. When 10 new students are admitted, the average is increased by 0.2 years. The average age of new students is

20. A man whose bowling average is 12.4, takes 5 wickets for 26 runs and ther eby decreases his average by 0.4. The number of wickets, taken by him before his last match is :.
21. The average of ten numbers is 7. If each nuniber is multiplied by 12, then the average of new set of numbers is :.
22. The average weight of 6 men decreases by 3 kg when one of them weighing 80 kg is replaced by a new man. The weight of the new man .
23. Out of four numbers, the average of first three is 16 and that of the last three is 15. If the last number is 18, the first number is
24. There are three sections of a class in a school. The number of students in the three sections is 38, 32 and 40 and the average age of the students in these sections separately is 15.3 years, 16.5 years and 15.9 years respectively. What is the average age of the class?.
25. The average of first five multiples of 3 is:.

ANSWERS

Question Nos	1	2	3	4	5
Answers	93	360	8	45 years	20
Question Nos	6	7	8	9	10
Answers	75 kg	2 yrs	37.5	90	11
Question Nos	11	12	13	14	15
Answers	(a + 4)	37.5	2M—N	39.7	30 yrs
Question Nos	16	17	18	19	20
Answers	35 years	38 years	300 g	16 yrs	85
Question Nos	21	22	23	24	25
Answers	84	62 kg	21	15.86 yrs	9

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5.1 TIME AND DISTANCE

Introduction

This chapter mainly deals with problem related among Distance, Time and Speed of the objects like body, birds, trains, persons, motor vehicles and submarines like any moving bodies.

Learning Objective

After reading this unit a student will learn to –

- **understand the relation between time and distance**
- **solve simple problems on time and distance**

Basic Formulae

1. Speed=Distance/Time ; Speed(s), Distance(d), Time(t)

2. $s \alpha 1/t \Rightarrow s_1t_1=s_2t_2 \Rightarrow s_1/s_2=t_2/t_1$
3. If speeds are constant then
   $d_1/t_1=d_2/t_2 \Rightarrow d_1/d_2=t_1/t_2$

4. If reaching times are same
   d/s=constant $d_1/s_1=d_2/s_2$
   $\Rightarrow s_1/s_2=d_1/d_2$
5. when a motor car covers a distance at s_1 km/hr and an equal distance at s_2 km/hr then the average speed for the total journey is $S = (2s_1s_2)/(s_1+s_2)$

Conversion Factor:

1. from km/hr to m/sec:
   When a motor car running with speed x km/hr its speed in m/sec is
   $(x \times \frac{5}{18})$m/sec
   Ex: 54km/hr = $54 \times \frac{5}{18}$=15m/sec

2. from m/sec to km/hr:
   When a car is running with speed y m/sec then its speed in km/hr is $y \times 18/5$ km/hr
Ex: If car speed is 50m/sec then it is
   $50 \times 18/5$ =180 km/hr.

Conversion of Time:

1Hr = 60min = 3600sec, 1day = 24hr = 24×60×60sec = 86400sec
Ex: 1Hr.40min => 1hr×40×1/60hr = 5/3hr.
2min.30sec => 2×30/60=1min
Note: when the speeds are in the same direction the resultant speed is $s=s_1-s_2$
When the speeds are in the opposite direction the resultant speed is $s=s_1+s_2$

Solved Problems

1. While covering a distance of 24 km, a man noticed that after walking for 1 hour and 40 minute, the distance covered by him was $\frac{5}{7}$ of the remaining distance. What was his speed in metres per second?

Sol. Let the speed be x km/hr.
Then, distance covered in 1 hr: 40 min. i.e., 1 2/3 hrs = 5x/3 km.
Remaining distance = [24-5x/3] km.
∴ 5x/3 = 5/7[24-5x/3]
⇔ 5x/3 = 5/7[72-5x/3] ⇔ 7x = 72-5x
⇔ 12x = 72 ⇔ x = 6
Hence, speed = 6 km/hr = [6×5/18] m/sec = 5/3m/sec = 1 2/3 m/sec

2. Two men starting from the same place walk at the rate of 10km/hr and 8km/hr respectively. Find the separation between them at the end of 7/2 hr if a) They walk in the opposite direction b) they walk in the same direction

Sol.
A) When they walk in opp. Direction the speeds are added $s=s_1+s_2=10+8=18$km/hr
The separation b/w them is 18km in one hr.
In 7/2hr they are apart, 18×7/2=63km

B) When they walk in same direction speeds are subtracted $s=s_1-s_2=10-8=2$km/hr
They are separated in 2km.
In 7/2 hr they are apart=2×7/2=7km.

Exercise

1. The ratio between the speeds of two trains is 7 : 8. If the second train runs 400 kms in 4 hours, then the speed of the first train is:
2. A man on tour travels first 160 km at 64 km/hr and the next 160 km at 80 km/hr. The average speed for the first 320 km of the tour is:

3. Robert is travelling on his cycle and has calculated to reach point A at 2 P.M. if he travels at 10 kmph, he will reach there at 12 noon if he travels at 15 kmph. At what speed must he travel to reach A at 1 P.M.?
4. A farmer travelled a distance of 61 km in 9 hours. He travelled partly on foot @ 4 km/hr and partly on bicycle @ 9 km/hr. The distance travelled on foot is:
5. In covering a distance of 30 km, Abhay takes 2 hours more than Sameer. If Abhay doubles his speed, then he would take 1 hour less than Sameer. Abhay's speed is:
6. A car travelling with of its actual speed covers 42 km in 1 hr 40 min 48 sec. Find the actual speed of the car.
7. It takes eight hours for a 600 km journey, if 120 km is done by train and the rest by car. It takes 20 minutes more, if 200 km is done by train and the rest by car. The ratio of the speed of the train to that of the cars is:
8. Excluding stoppages, the speed of a bus is 54 kmph and including stoppages, it is 45 kmph. For how many minutes does the bus stop per hour?
9. A person crosses a 600 m long street in 5 minutes. What is his speed in km per hour?
10. A man covered a certain distance at some speed. Had he moved 3 kmph faster, he would have taken 40 minutes less. If he had moved 2 kmph slower, he would have taken 40 minutes more. The distance (in km) is:
11. A train can travel 50% faster than a car. Both start from point A at the same time and reach point B 75 kms away from A at the same time. On the way, however, the train lost about 12.5 minutes while stopping at the stations. The speed of the car is:
12. In a flight of 600 km, an aircraft was slowed down due to bad weather. Its average speed for the trip was reduced by 200 km/hr and the time of flight increased by 30 minutes. The duration of the flight is:

ANSWERS

1	2	3	4	5	6
87.5 km/hr	71.11 m/h	12 m/h	16m	5 km/h	35 km/h
7	**8**	**9**	**10**	**11**	**12**
3:4	10	7.2	40	120 kmph	1 hour

5.2 TIME AND WORK

Introduction

Every one of us come across such situations where we need to complete a job in a reasonable time. Depending on the time and need of the job, personnel have to be increased or decreased to complete the job. It requires that more men have to be inducted to complete the job in relatively shorter time and vice versa, i.e., the time allowed and the men engaged to complete a job are inversely proportional to each other. Sometimes, we also come across such situations where time and distance or men and distance are in direct proportion to each other.

This chapter enables students to understand how to calculate the number of days in which a given work has to be completed, number of persons required to complete a given work etc.

This chapter deals with problems related with time and work done by persons.

Learning Objects

After reading this unit a student will learn to –

- understand the relation between time and work
- solve simple problems on time and work

Improtant points and formulae

1. If 'A 'can finish a piece of work in 'n' days then A s 1 day's work is =1\n
2. If A is X-times as good a work man as B, then A will take 1/x of the time that B takes to do a certain work.
3. If M1 person can do W1 times in D1 days for T1 hours and M2 person works in D2 days for T2 hours then=$M_1D_1T_1W_2=M_2D_2T_2W_1$
4. If A can finish a work in X-days and B can finish the some work in Y- days, then time taken by both to finish the work are XY\X+Y days
5. If A and B together can do a piece of work in X- days and A alone can do it in Y- days then B alone can do it XY/(Y-Z) days.
6. If A,B and C can do a work in X,Y and Z days respectively then all of them working together can finish the work in (XYZ)/(XY+YZ+ZX)
7. If two taps A and B take a and b hours respectively to fill a tank then the two taps together fill 1/a+1/b part of the tank in an hour and the total tank fill in ab/a+b hours.

Solved Problems

1. 'A' can do a piece of work in 12 days and 'B' alone can it in 15 days how much time both will take to finish the work together?

Solution:

Work done by'A' in 1 day =1/12
Work done by'b' in 1 day =1/15
Therefore both together can finish the work in 20/3days or 6 2/3days.

Short cut:
xy/x+y=12x15/12+15=12x15/27=20/3=6 2/3days.

2. A tank can be filled separately by the two pipes in 12 and 16 minutes respectively if both pipes are opened together, when will the tank be filled?

Sol: (Short cut)
The time taken to fill the tank by both pipes = ab/a+b=12x6/12+16
=12x16/28=48/7=6 6/7 minutes

3. 16 men can do a piece work in ten days. How many men are needed to complete the work in 40 days?

Sol: $M_1 = 16, D_1 = 10, D_2 = 40, M_2 = M_2$

$M_1 D_1 = M_2 D_2$

$M_2 = 16x10/40 = 4$ men

4. A and B can do a piece of work in 18 days. B and C in 24 days. A and C in 36 days. In what time can they do it in all work together?

Sol: [(A+B) + (B+C) + (A+C)]' s 1day's work=1/18+1/24+1/36=1/8
2(A+B+C)'s 1 day work=1/8
(A+B+C)'s 1 day work=1/16
Therefore all can finish the work in 16 days.

Exercise

1. A can do a piece of work in 15 days and B alone can do it in 10 days. B works at it for 5 days and then leaves. A alone can finish the remaining work in : .
2. A can do a certain job in 12 days. B is 60% more efficient than A. The number of days, it takes B to do the same piece of work, is.
3. A father can do. a job as fast as his two sons working together. If one son does the job in 3 hours and the other in 6 hours, how many hours does it take the father to do the job'?

4. A does half as much work as B in three-fourth of the time. If together they take 18 days to complete the work, how much time shall B take to do it
5. A can do a piece of work in 80 days. He works at it for 10 days and then B alone finishes the remaining work in 42 days. The two together could complete the work in :
6. 45 men can complete a work in 16 days. Six days after they started working, 30 more men joined them. How many days will they now take to complete the remaining work?.
7. If 10 men or 18 boys can do a piece of work in 15 days, then 25 men and 15 boys together will do twice the work in: .
8. If Ramesh, Suresh and Harish can do a piece of work in 15 days, 10 days and 6 days respectiVelY how long will they take to do it, if all the three work at it together ?
9. A and B can do a piece of work in 45 days and 40 days respectively. They began to do the work together but A leaves after some days and then B completed the remaining work in 23 days. The number of days after which A left the work was : .
10. A and B can dO a Piece of work in 5 days ;B and c can do it in 7 day; A and C can do it in 4 days. Who among these will take the least time if put to do it alone?
11. Twelve men can complete a work in 8 days. Three days after they started the work, 3 more men joined. In how many days will all of them together complete the remaining work? A, B and C can do apiece of work in 11 days, 20 days and 55 days respectively, working alone. How soon can the work be done if A is assisted by B and C on alternate days?
12. A does half as much work as B and C does half as much work as A and B together. If C alone can finish the work in 40 days, then together all will finish the work in:
13. A can do of the work in 5 days and B can do of the work in 10 days. In how many days both A and B together can do the work?.
14. A and B can do a piece of work in 72 days, B and C can do it in 120 days. A and C can do it in 90 days. In what time can A alone do it?.
15. Ram can do a piece of work in 8 days which Shyam can finish in 12 days. If they work at it on alternate days with Ram beginning, in how many days, the work will be finished?.

ANSWERS

1	2	3	4	5
7 days	*7 and (1/2)*	*2*	*30 days*	*30 days*
6	*7*	*8*	*9*	*10*
6	*9 days*	*3 days*	*9*	*A*
11	*12*	*13*	*14*	*15*
8 days	*13 and 1/3 days*	*9 and (3/8)*	*120 days*	*9 and 1/2*

5.3 PROBLEMS ON TRAINS

Introduction

This chapter mainly focuses on the students I.Q. and deals with mainly on trains speed, distance covered, length of the train, crossing each other and observer calculation and length of the platform.

Learning Objectives

After reading this unit a student will learn to –

- understand the relation among speed, distance covered and length of the train etc.
- solve simple problems on trains and observer.

Important Formula

1 Time taken by train of length 'l' meters to pass a stationary object of length 'b' meters is the time taken by the train to cover (l+b) meters.

2 Relative Speed: a) when two trains are moving in the same direction at u m/s and v m/s, where u>v then their relative speed is (u-v) m/s.

b) If the two trains are moving in opposite direction then the relative speed is (u+v) m/s.

4. Trains Crossing each other:

a) When the trains of length 'a' m and 'b' m are moving in opp. Direction at u m/s and v m/s respectively then time taken by trains to cross each other (a+b)/(u+v)sec.

b) When the trains are moving same direction, the crossing time (a+b)/ (u-v) sec.

5. When two trains start at the same time from 'A' and 'B' points towards each other and after crossing each other they take 'a' and 'b' sec in reaching 'B' and 'A' respectively (A speed): (B speed) = $\sqrt{b}:\sqrt{a}$

Solved Problems

1. A train 150m long is running with speed 68kmph. In what time will it pass a man who is running at 8kmph in the same direction in which the train is going?

Sol. Speed of the train relative to man = (68-8) kmph
=60 kmph
= $(60\times5/18)$ m/s
= (50/3) m/s

Time taken by the train to cross the man= time taken by it to cross 150m at (50/3) m/sec = $150\times3/50$ = 9 sec

2. Two trains 100 meters and 120 meters long are running in the same direction with speed of 72 kmph and 54 kmph. In how much time will the first train cross the second?

Sol: Relative speed of the train = (72-54) kmph=18 kmph
= $(18\times5/18)$ m/sec =5 m/s

T ime taken by the trains to cross each other
= Time taken to cover (100+120) m at 5 m/second
= (220/5) second = 44 sec.

Exercise

1. A train travelling at a speed of 75 mph enters a tunnel 3.5 miles long. The train is 0.25 mile long. How long does it take for the train to pass through the tunnel from the moment the front enters to the moment the rear emerges?
2. The length of the bridge, which a train 130 metres long and travelling at 45 km/hr can cross in 30 seconds, is:
3. A train overtakes two persons who are walking in the same direction in which the train is going, at the rate of 2 kmph and 4 kmph and passes them completely in 9 and 10 seconds respectively. The length of the train is:
4. A train 800 metres long is running at a speed of 78 km/hr. If it crosses a tunnel in 1 minute, then the length of the tunnel (in meters) is:
5. A train 240 m long passes a pole in 24 seconds. How long will it take to pass a platform 650 m long?
6. A train passes a station platform in 36 seconds and a man standing on the platform in 20 seconds. If the speed of the train is 54 km/hr, what is the length of the platform?
7. A train 108 m long moving at a speed of 50 km/hr crosses a train 112 m long coming from opposite direction in 6 seconds. The speed of the second train is:
8. A jogger running at 9 kmph alongside a railway track in 240 metres ahead of the engine of a 120 metres long train running at 45 kmph in the same direction. In how much time will the train pass the jogger?
9. A 300 metre long train crosses a platform in 39 seconds while it crosses a signal pole in 18 seconds. What is the length of the platform?
10. Two trains are moving in opposite directions @ 60 km/hr and 90 km/hr. Their lengths are 1.10 km and 0.9 km respectively. The time taken by the slower train to cross the faster train in seconds is:
11. Two trains are running in opposite directions with the same speed. If the length of each train is 120 metres and they cross each other in 12 seconds, then the speed of each train (in km/hr) is:
12. A train moves past a telegraph post and a bridge 264 m long in 8 seconds and 20 seconds respectively. What is the speed of the train?
13. Two, trains, one from Howrah to Patna and the other from Patna to Howrah, start simultaneously. After they meet, the trains reach their destinations after 9 hours and 16 hours respectively. The ratio of their speeds is:
14. How many seconds will a 500 metre long train take to cross a man walking with a speed of 3 km/hr in the direction of the moving train if the speed of the train is 63 km/hr?
15. A train 360 m long is running at a speed of 45 km/hr. In what time will it pass a bridge 140 m long?

Answers

1	2	3	4	5
3 min	*245 m*	*50 m*	*500*	*65 sec*
6	7	8	9	10
240 m	*82 km/hr*	*36 sec*	*350 m*	*48*
11	*12*	*13*	*14*	*15*
36	*79.2 km/hr*	*4 : 3*	*30*	*40 sec*

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6.1 PERMUTATIONS AND COMBINATIONS

Important Definitions and Formulae

1. Factorial Notation:

Let n be a positive integer. Then, factorial n, denoted by n! is defined as: $n! = n(n-1)(n-2) \ldots 3.2.1$.

Example

$5! = (5 \times 4 \times 3 \times 2 \times 1) = 120$.

2. Permutations:

The different arrangements of a given number of things by taking some or all at a time, are called permutations.

Example

All permutations (or arrangements) made with the letters a, b, c by taking two at a time are (*ab, ba, ac, ca, bc, cb*).

3. Number of Permutations:

Number of all permutations of n things, taken r at a time, is given by:

$^{n}P_{r} = n(n-1)(n-2) \ldots (n-r+1) = n!/(n-r)!$

Example

$^{6}P_{2} = (6 \times 5) = 30$

4. Combinations:

Each of the different groups or selections which can be formed by taking some or all of a number of objects is called a combination.

Example

1. Suppose we want to select two out of three boys *A, B, C*. Then, possible selections are *AB, BC* and *CA*
2. All the combinations formed by *a, b, c* taking one at a time are a,b,c
3. The only combination that can be formed of three letters *a, b, c* taken all at a time is *abc*.

Solved Problems

1. In how many different ways can the letters of the word 'JUDGE' be arranged in such a way that the vowels always come together?

Solution

The word JUDGE has 5 different letters. Treating UE as one letter we have to arrange 4 letters JDG (UE).

Now, 4 letters can be arranged in 4! ways = 24 ways.

The vowels (UE) can be arranged in 2! ways = 2 ways.

Required number of ways = (24 x 2) =48

2. How many 4 letter words with or without meaning, can be formed out of the letters of the word, LOGARITHMS', if repetition of letters is not allowed?

Solution

'LOGARITHMS' contains 10 different letters.

Required number of words = Number of arrangements of 10 letters,taking 4 at a time.

$= {}^{10}p_4$

$= (10 \times 9 \times 8 \times 7)$

$= 5040$

3. In how many ways can the letters of the word 'LEADER' be arranged?

Solution

The word 'LEADER' contains 6 letters namely 1L , 2 E, 1A,1D, and 1R.

$= 6! / (1!)(2!)(1!)(2!)$

Required number of ways = 360.

4. How many words can be formed by using all letters of the word 'BIHAR'?

Solution

The word 'BIHAR' contains 5 different letters

Required number of words = = ${}^5P_5 = 5! = (5 \times 4 \times 3 \times 2 \times 1) = 120$

5. In how many ways a committee, consisting of 5 men and 6 women can be formed from 8 men and 10 women?

Solution

Required number of ways

$= ({}^8C_5 \times {}^{10}C_6)$

$= ({}^8C_3 \times {}^{10}C_4)$

$= (8x7x6/3x2x1 \times 10x9x8x7/4x3x2x1)$

$= 11760$

6. In how many ways can the letters of the word 'LEADER' be arranged?

Solution

The word 'LEADER' contains 6 letters namely 1L , 2 E, 1A,1D, and 1R.

Required number of ways

$= 6! / (1!)(2!)(1!)(2!)$

$= 360$

Exersice

1. In how many ways can a group of 5 men and 2 women be made out of a total of 7 men and 3 women?
2. How many 3 digit numbers can be formed from the digits 2, 3, 5, 6, 7 and 9 which are divisible by 5 and none of the digits is repeated?
3. How many words with or without meaning , can be formed by using all the letters of the word , 'DELHI' using all the letters of the word using each letter exactly once?
4. In how many different ways can the letters of the word 'RUMOUR' be arranged?
5. The value of ${}^{75}P_2$ is
6. In how many ways can the letters of the word ' APPLE' be arranged?
7. A box contains 2 white balls, 3 black balls and 4 red balls. In how many ways can 3 balls be drawn from the box, if at least one black ball is to be included in the draw?
8. In how many different ways can the letters of the word 'AUCTION' be arranged in such a way that the vowels always come together?
9. How many words can be formed from the letters of the word 'SIGNATURE' so that the vowels always come together?
10. How many arrangements can be made out of the letters of the word ' ENGINEERING?

ANSWER

1	**2**	**3**	**4**	**5**
63	**20**	**120**	**180**	**555**
6	**7**	**8**	**9**	**10**
60	**64**	**576**	**17280**	**277200**

6.2 PROBABILITY

Introuduction

Probability is a measure of the likeliness that an event will occur.

Probability is used to quantify an attitude of mind towards some proposition of whose truth we are not certain. The proposition of interest is usually of the form "Will a specific event occur?" The attitude of mind is of the form "How certain are we that the event will occur?" The certainty we adopt can be described in terms of a numerical measure and this number, between 0 and 1 (where 0 indicates impossibility and 1 indicates certainty), we call probability. Thus the higher the probability of an event, the more certain we are that the event will occur.

Learning Objectives

After reading this unit a student will learn –

- what probability is,
- different ways to express probability numerically: as a ratio, a decimal, and a percentage, and
- how to solve problems based on probability.

Random Experiment

An experiment whose outcome cannot be predicted with certainty is called a random experiment. In other words, if an experiment is performed many times under similar conditions and each time the outcome is not the same, then this experiment is called a random experiment.

Examples of a random experiment are

a) Tossing a fair coin
b) Throwing an unbiased die
c) Drawing a card from a well shuffled pack of 52 playing cards

Let us consider an example in which a person is given 10 bullets to hit the given target. He fires the shots one by one, he finds only 5 bullets have hit the target

Now he again fires the another set of 10 bullets to the target again he finds that only five bullets have hit the target so his target hitting accuracy or chance of hitting the target is 50%, as he can hit five out of ten times.

Now again if he tries to hit the target with 10 bullets we can very well say that most probably he will have five hits at the target out of ten. So this probably word stated above is known as Probability in Mathematics.

Here the event was hitting the target. He was given total ten chances and he managed to hit only five shots accurately at the target i.e his accuracy in percentage was $\frac{5}{10} X100 = 50\%$ or simply probability of his hitting the target is $\frac{5}{10}$ i.e $\frac{1}{2}$

So, for example if this person is given 20 bullets, we can say that most probably he will fire 10 shots accurately or if he is given 100 bullets, most probably he will fire 50 shots accurately. But practically, one may suppose that it may not happen always that this person can hit with 50% accuracy. This we are talking in terms of chances only. It may be possible that he may hit 4 out 10 or 6 or 7 out of 10 times. But again the most probably seeing his record one can say his accuracy is approximately 50%.

Now if we have followed the above event or case or an experiment then we can define and try to understand the probability mathematically and also some of basic terms related to this topic.

A) Probability (of any given event A) = P(A), is ratio of chances favourable to given event (A) to total chances of happening of given event (A). It is denoted by P(A) read as Probability of (A)

P(A) = Chances in favour of (A) / total number of equally likely cases

B) Random Experiment : A repeatable experiment whose result will be known only after the experiment is completed is known as Random Experiment.

Ex: Tossing a coin, rolling a die, drawing a card from a pack of cards etc.

C) Simple Event : Any result in a random experiment which cannot be further split is called a simple event.

D) Sample space : The set of all simple events is called a sample space.

E) Compound event : If an event consists of more than one simple event then it is called compound event.

F) Exhaustive events : If the union of certain events is the entire sample space , then the events are said to be exhaustive events.

G) Mutually exclusive events : If the happening of one event prevents the happening of the other event then the events are called mutually exclusive events.

H) Equally likely events: If all events have the same chance of occurrence then they are said to be equally likely events.

I) Independent events : Two events are said to be independent if the occurrence of one event does not affect the occurrence of the other.

J) **Dependent events :** Two events are said to be dependent if the occurrence of second event depends on the occurrence of 1st event.

K) **Sum of events:** Sum of two events A and B = A+B = occurrence of either A or B.

L) **Product of events :** Product of two events A and B = AB = occurrence of both A and B.

M) Odds in favour of A is a : b it means, ratio of chances that event A will happen to chances that event will not happen

$P(A) = \frac{a}{a+b}$ and $P(\overline{A}) = \frac{b}{a+b}$ where a+b is total number of chances.

Odds against A is a:b is ratio of not happening of A to happening of A

$P(A) = \frac{a}{a+b}$ and $P(\overline{A}) = \frac{b}{a+b}$ where a+b is total number of chances.

N) For any event A, $0 \le P(A) \le 1$ i.e., Probability of any event A is always greater than or equal to 0 and it is always less than or equal to 1.

O) 1. Total cases when n coins are tossed once or one coin is tossed n times = 2^n
2. Total cases when n dice are thrown once or one die is thrown n times = 6^n

Solved Problems

Types of Questions:

1. Simple questions based on concepts of permutation and combinations
2. Based on addition theorem of probability

TYPE -1

1. A die is thrown. What is the probability of getting a six.
Total cases = 6 (i.e., (1,2,3,4,5,6 as any number from 1 to 6 come in throw of a dice)
Favourable cases = 1
(as only one six as a number is there on dice)
Probability = $\frac{1}{6}$

2. A coin is tossed, what is probability of getting a head.
When a coin is tossed, total
outcomes = 2 i.e., (H,T)
favourable outcome for given

event = (H) i.e., one out come.
Probability (getting a head) = $\frac{1}{2}$

3. Two coins are tossed, what is the probability of getting two tails only.
Sample space, when two coin are tossed = {HH,TT,TH,HT}
Total outcomes = 2^2 = 4
As it is clear from the sample space, we have 1 outcome only in which there are exactly two tails.
Probability (getting two tails) = $\frac{1}{4}$

4. A bag contains 4 Red, 6 White and 7 blue balls. Two balls are drawn at random, what is the probability that both are red.

Total no. of balls = 4 + 6 + 7 = 17

Total no. of cases = No. of Ways of selecting two balls = $17C_2 = \frac{17!}{15!2!}$

Let A be event of drawing two red balls. No. of ways of selecting 2 red balls out of 4 red, which is also number of favorable outcomes for this question. = $4C_2$

$= \frac{4!}{2!2!} = \frac{4\times3}{2} = 6$

P(A) = Probability of drawing 2 red balls = $\frac{6}{136} = \frac{3}{68}$

5. A card is drawn at random from deck of 52 cards. What is the probability of getting
i) an ace ii) a red card iii) a diamond

Since total cards are 52, total no. of outcomes = 52

i) Favorable outcomes = 4
(as 4 aces are there in of 52 cards)
Probability = $\frac{4}{52} = \frac{1}{13}$

ii) Favorable outcomes = 26 (as there are 26 black and 26 red cards in a pack of cards)
Probability = $\frac{26}{52} = \frac{1}{2}$

iii) Favorable outcomes = 13 (as there are 13 cards each of 4 different suits 13 of diamond, 13 of club, 13 of Heart , 13 of spade)

Probability = $\frac{13}{52} = \frac{1}{4}$

6. Two cards are drawn at random from the pack of 52 cards. What is the probability of getting a King or a Queen?

The drawing of king and drawing of Queen are mutually exclusive events.
Therefore by additive rule of probability
P (King or Queen)
= P (King) + P (Queen)
$= \frac{4}{52} + \frac{4}{52} = \frac{2}{13}$

7. 3 coins are tossed together. Find the probability of getting
i) Exactly one head ii) At least 1 head iii) At most 1 head

Total number of cases when three coins are tossed together = $2^3 = 8$.
Now we will solve each of the above questions one by one.

i) The cases of getting exactly one head are (HTT) (TTH) (THT)

Probability of getting exactly one head = $\frac{3}{8}$

ii) Probability of getting at least one head = 1 – probability of getting no head = $1 - \frac{1}{8} = \frac{7}{8}$

iii) The cases of getting at most one head are (TTT) (HTT) (TTH) (THT)
Probability of getting at most one head
$= \frac{4}{8} = \frac{1}{2}$

8. A card is drawn from the pack of 50 cards numbered 1 to 50. The probability of drawing a number, which is a square.
Total possible outcomes = 50 (as there are 50 cards)
Favorable outcomes = Number of cards on which square of numbers from 1 to 50 are there.
Those can be (1, 4 , 9, 16, 25, 36, 49) i.e. seven favorable outcomes.

Probability (perfect square) = $\frac{7}{50}$

TYPE : II - BASED ON ADDITION THEOREM OF PROBABILITY

1. Notations:

i) P(AUB) : Probability of either A or B (or) Probability of at least one of A and B

ii) P(AUBUC) = Probability of either A or B or C (or) Probability of at least one of A , B and C.

Addition theorem of probability: If A and B be any two events in a sample space S, then the probability of occurrence of at least one of the events A and B is given by

$$\mathbf{P(AUB) = P(A) + P(B) - P(A \cap B)}$$

If A, B and C are any three events in a sample space S, then

$$\mathbf{P(AUB \cup C) = P(A) + P(B) + P(C)} - \left\{ \begin{array}{c} \mathbf{P}(A \cap B) \\ +P(B \cap C) \\ +P(C \cap A) \\ -P(A \cap B \cap C) \end{array} \right\}$$

Solved Problems

1. If P(A) = ¼, P(B) = ½ P(AUB) = 5/8 then $P(A \cap B) = ?$

$P(AUB) = P(A) + P(B) - P(A \cap B)$

$P(A \cap B) = P(A) + P(B) - P(AUB)$

$= \frac{1}{4} + \frac{1}{2} - \frac{5}{8} = \frac{1}{8}$

2. Twenty tickets are numbered from 1 to 20 and one of them is drawn at random, the probability that number is divisible by 2 or 5 is.

Total possible outcomes = 20

Let A denote the event that number drawn is multiple of 2 and these nos are (2, 4, 6, 8, 10, 12, 14, 16, 18, 20)

N(A) = 10

B denote the event that number drawn is multiple of 5 and these number are (5 10 15 20)

n(B) = 4

$A \cap B = \{10, 20\} \Rightarrow n(A \cap B) = 2$

Therefore the events are not mutually exclusive.

Required probability

$= P(A) + P(B) - P(A \cap B)$

$= \frac{10}{20} + \frac{4}{20} - \frac{2}{20} = \frac{3}{5}$

Exercise

1. In a lottery, there are 10 prizes and 25 blanks. A lottery is drawn at random. What is the probability of getting a prize?
2. A bag contains 6 black and 8 white balls. One ball is drawn at random. What is the probability that the ball drawn is white?
3. From a pack of 52 cards, two cards are drawn together at random. What is the probability of both the cards being kings?
4. Tickets numbered 1 to 20 are mixed up and then a ticket is drawn at random. What is the probability that the ticket drawn has a number which is a multiple of 3 or 5?
5. What is the probability of getting a sum 9 from two throws of a dice?
6. In a box, there are 8 red, 7 blue and 6 green balls. One ball is picked up randomly. What is the probability that it is neither red nor green?
7. The probability that a card drawn from a pack of 52 cards will be a diamond or a king is
8. In a single throw of a die, what is the probability of getting a number greater than 4?
9. Three unbiased coins are tossed. What is the probability of getting at most two heads?

10. A card is drawn from a pack of 52 cards. The probability of getting a queen of club or a king of heart is
11. One card is drawn at random from a pack of 52 cards. What is the probability that the card drawn is a face card?
12. Three unbiased coins are tossed. What is the probability of getting at least 2 heads?
13. Two dice are thrown together. What is the probability that the sum of the numbers on the two faces is divisible by 4 or 6?
14. An unbiased die is tossed. Find the probability of getting a multiple of 3.
15. A box contains 20 electric bulbs, out of which 4 are defective. Two bulbs are chosen at random from this box. The probability that at least one of these is defective is

ANSWERS

1	**2**	**3**	**4**	**5**
2 / 7	**4/7**	**1/221**	**9/20**	**1/9**
6	**7**	**8**	**9**	**10**
8/21	**4 / 13**	**1/3**	**7/8**	**1/26**
11	**12**	**13**	**14**	**15**
4/13	**1/2**	**1/3**	**7 / 18.**	**1/3**

Day	Topic	Page
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Day 38	7.1 Areas	84 - 87
Day 39	7.2 Volumes	
Day 40	7.2 Surface Areas	

7.1 AREAS

Introuduction

This unit deals with Measurements of areas, volumes of triangles, Rectangles, circles, parallelogram, cubes etc..

Learning Objectives

After reading this unit a student will learn to –

- know and use the formula for the area of a rectangle;
- calculate the perimeter and area of shapes made from rectangles
- calculate the surface area of cubes and cuboids
- interpret and explore combining measures into rates of change in everyday contexts
- use compound measures to compare in real-life contexts

Important Formulae

- Area of the rectangle = $\frac{1}{2} \times$base$\times$height
- Area of equilateral triangle = $\frac{\sqrt{3}}{4}$ (side)^2
- Semi perimeter of the triangle of sides a, b ,c is $s = (a + b + c) / 2$
- Area of the triangle = $\sqrt{(s(s-a)(s-b)(s-c))}$
- Area of the parallelogram = base $\times$ height
- Area of the rectangle = length$\times$breadth
- Area of the square = $(a)^2 = \frac{1}{2}$ (diagonal)^2
- Diagonal = $\sqrt{2}$ a
- Perimeter = 4a

Trapezium : area = $\frac{1}{2}$ (sum of the parallel sides) $\times$ distance between them

Rhombus : area = $\frac{1}{2}$ (product of diagonals)

Circle: area = Πr^2 , $\Pi = \frac{22}{7} = 3.14$

Circumference = $2\Pi r$

Sector: Length of an arc = $r\theta$

Area of a sector = $r^2\theta$, where θ is in radians.

7.2 VOLUME AND SURFACE AREA

Cuboids: volume of the cuboid = l b h

Longest diagonal of the cuboid = $\sqrt{l^2+b^2+h^2}$

Total surface area = 2(lb+bh+lh)

Area of the room=(length × breadth)

Area of 4 walls of the room = 2(l+b) ×height

Cube:

- Volume of the cube = a^3
- Longest diagonal = $\sqrt{3}a$
- Total surface area = $6a^2$
- Total length of all edges = 12a

Cylinder:

- Volume = $\Pi r^2 h$
- Base area = Πr^2
- Curved surface area = $2\Pi rh$
- Total surface area = $2\Pi rh+2\Pi r^2$

Pyramid: volume = 1/3 ×area of the base × height

Cone: if the radius of the base of the cone is r, height is h and slant height is (l).

Then $l^2= h^2+r^2$

- Volume of the cone = $\frac{1}{3} \Pi r^2 h$
- Area of the curved surface = $\Pi r l$
- Total surface area = $\Pi r l+\Pi r^2 = \Pi r(l+r)$

Sphere :

- Volume = $4/3\ \Pi r^3$ r-is the radius
- Curved surface area = $4\Pi r^2$

Hemi sphere:

- Volume = $2/3\ \Pi r^3$
- Curved surface area = $2\ \Pi r^2$

- Total surface area = $3\Pi r^2$
- Volume of spherical shell = $4/3\ \Pi\ (R^3-r^3)$
- Volume of the metal in a hallow pipe = $\Pi(R^2-r^2)h$
- Total surface area of an open pipe = $2\Pi\ [(Rh+rh+(R^2-r^2)]$

Solved Problems

1. A rectangular box is 2 m long and 3.5 m wide. How many cubic metres of sand are needed to fill the box upto a depth of 12 cm?
   Answer : 0.84
   Explanation: Volume = $2\times7/2\times12/100=0.84$

2. How many bags of grain can be stored in a cuboid granary12 mx 6 in x 5 m, if each bag occupies a space of 0.48 cu. metre?
   Answer : 750
   Explanation : number of bags = vol of granary / vol of bag = $12 \times 6 \times 2 / 0.48 = 750$

3. If the length of diagonal of a cube is $4\sqrt{3}$ cm, then its surface area is:
   Answer : 96
   Explanation:
   $\sqrt{3}a = 4\sqrt{3}$ so $a = 4$
   surface area = $6a^2 = 96$ sq.cm
4. If each edge of a cube is doubled, then its volume:
   Answer : becomes 8 times
   Explanation : Let original edge is a and volume = a^3
   new edge = 2a so $(2a)^3 = 8a^3$
5. The length of the longest rod that can be placed in a room 30 m long,24 m broad and 18 m high, is:.
   Answer: *$30\sqrt{2}$ m*
   Explanation: length of longest rod = length of diagonal = $\sqrt{(l^2 + b^2 + h^2)} = \sqrt{(30^2 + 24^2 + 18^2)} = \sqrt{1800} = 30\sqrt{2}$

6. A beam 9 m long, 40 cm wide and 20 cm high is made up of iron which weighs 50 kg per cubic metre. The weight of the beam is.
   Answer: *36 kg*
   Explanation: Volume = $9 \times 40/100 \times 20/100 = 18/25$
   weight = $18/25 \times 50 = 36$
7. The capacity of a tank of dimensions (8 m x 6 m x 2.5 m), is
   Answer: *120000 cc*
   Explanation: Capacity = volume of tank = $(8 \times 100 \times 6 \times 100 \times 2.5 \times 100)/1000 = 120000$ cc

8. The number of small cubes with edge 10 cm that can be accomodated in a cubical box of 1 metre edge, is:
   Answer: *1000*
   Explanation: Number of cubes = $100 \times 100 \times 100 / (10 \times 10 \times 10) = 1000$

9. The maximum length of a pencil that can he kept in a rectangular box of dimensions 8 cm x 6 cmx 2 cm, is :.
   Answer : $2\sqrt{26}$ *cm*
   Explanation: Maximum length = $\sqrt{(8^2 + 6^2 + 2^2)} = \sqrt{104} = 2\sqrt{26}$
10. The ratio of the volume of a cube to that of a sphere which will fit inside the cube is :
   Answer: $6:\pi$

   Explanation: If edge of cube is a then volume is a^3
   radius of sphere = a/2
   volume of sphere = $4/3\pi(a/2)^3 = \pi a^3/6$

11. A wooden box of dimensions 8 m x 7 m x 6 m is to carry rectangular boxes of dimensions 8 cm x 7 cm x 6 cm. The maximum number of boxes that can be carried in the wooden box, is :.
   Answer: *1000000*
   Explanation: Number = $(800 \times 700 \times 600)/8 \times 7 \times 6 = 1000000$
12. The surface area of a cube is 600 cm^2. The length of its diagonal is:.
   Answer: $10\sqrt{3}$ *cm*

   Explanation: $6a^2 = 600$ so a = 10
   diagonal = $a\sqrt{3}$

13. The volume of a cube is 2744 cu.cm, Its surface area is
   Answer: *1176* cm^2
   Explanation: $a^3 = 2744$ = so a = 14
   surface area = $6a^2 = 1176$

Section -2

REASONING

i) Verbal Reasoning

Units 8 to 11

ii) Non-Verbal Reasoning

Units 12 and 13

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	i) Verbal Reasoning	
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Day 43	8.2 Number Analogy	95 – 98
Day 44	8.3 Odd Man Out	99 – 101
Day 45	8.4 Coding & Decoding-1	
Day 46	8.4 Coding & Decoding-2	

8.1 NUMBER SERIES

VERBAL REASONING

In each of the following questions a number series is given with one term missing. Choose the correct alternative that will continue the same pattern and fill in the blank spaces.

1) 1. 2, 7, 14, 23, ?, 47

The given sequence is +5, +7, +9, ——
ie. 2+ 5 = 7, 7 + 7 = 14, 14 + 9 = 23
Missing Number = 23 + 11 = 34.

2) 4, 6, 12, 14, 28, 30, ?

The given sequence is a combination of two series 4, 12, 28, ... and 6, 14, 30, ... The pattern is +8, +16, +32. So, the missing number = (28 + 32) = 60

3) 4, 9, 13, 22, 35, ?

Answer : 57

4+9 = 13, 9 +13 = 22, 13+22 = 35, 22 +35 = 57

4) 11, 13, 17, 19, 23, 29, 31, 37, 41, ?

Answer : 43

The series consists of prime numbers.

5) 15, 31, 63, 127, 255, ?

Answer : 511.

Each number is double of the preceding one plus 1.

6) 5, 11, 17, 25, 33, 43, ?

Answer : 53
The sequence is +6, +6, +8, +8, +10, ...

7) 9, 12, 11, 14, 13, ?, 15

Answer : 16.

Alternatively, 3 is added and one is subtracted.

8) 0.5, 0.55, 0.65, 0.8, ?

Answer : 1

0.5 +0.05 = 0.55, 0.55 + 0.1 = 0.65, 0.65 + 0.15= 0.8, 0.8 + 0.2 = 1

9) 1, 4, 9, 16, 25, ?

Answer: 36

1+3 =4, 4 +5 = 9, 9+7= 16, 16+9 =25, 25+11= 36

10) 2, 1, (1/2), (1/4), ?

Answer : 1/8.
This is a simple division series; each number is one-half of the previous number.

11) 1, 4, 27, 16, ?, 36, 343

Answer : 125.
The series consists of cubes of odd numbers and square of even numbers.

12) 20, 19, 17, ?, 10, 5

Answer : 14.
The Pattern is - 1, - 2, -3, ...

13) 7, 10, 8, 11, 9, 12, ?

Answer : 10.
Observe the two series
7,8,9,10,... and 10,11,12,13,...

14) 6, 11, 21, 36, 56, ?

Answer : 81.

The pattern is + 5, + 10, + 15, + 20,....

15) 2, 3, 5, 7, 11, ?, 17

Answer : 13.

The series consists of prime numbers starting from 2.

16) 36, 34, 30, 28, 24, ?

Answer : 22.
This is an alternating number subtraction series. The pattern is -2, -4, -2, ...

17) 13, 35, 57, 79, 911, ?

Answer : 1113.

The terms are formed by joining together consecutive odd numbers in order. i.e. 1 and 3, 3 and 5, 5 and 7, 7 and 9, 9 and 11,....

18) 53, 53, 40, 40, 27, 27, ?

Answer : 14.

First, each number is repeated, then 13 is subtracted to arrive at the next number.

19) 11, 10, ?, 100, 1001, 1000, 10001

Answer : 101.

The pattern is - 1, × 10 + 1, - 1, × 10 + 1, - 1, × 10 + 1, ...

20) 1, 6, 13, 22, 33, ?

Answer : 46.

The pattern is + 5, + 7, + 9, + 11,....

21) 21, 9, 21, 11, 21, 13, 21, ?

Answer : 15.
In this alternating repetition series, the number 21 is interpolated. If you exclude 21, the series increases by 2, beginning with the number 9.

22) 10, 14, 26, 42, 70, ?

Answer : 114

10+14+2 =26, 14+26+2=42, 26+42+2 = 70, 42+70+2=114

23) 1, 9, 17, 33, 49, 73, ?

Answer : 97.
The pattern is + 8, + 8, + 16,+16, + 24,+24...

24) 31, 29, 24, 22, 17, ?

Answer : 15.
This is a simple alternating subtraction series, with a pattern -2, -5, -2, -5 ....

25) 1, 9, 25, 49, 81, ?

Answer : 121.
The series consists of squares of consecutive odd numbers.

26) 5, 9, 17, 29, 45, ?

Answer : 65.
The pattern is + 4, + 8, + 12, + 16, ...

27) 14, 28, 20, 40, 32, 64, ?

Answer : 56.
This is an alternating multiplication and subtracting series with a pattern x2, -8, x2, -8.

28) 2, 6, 12, 20, 30, 42, 56, ?

Answer : 72.
The pattern is $1 \times 2, 2 \times 3, 3 \times 4, 4 \times 5, 6 \times 7, 7 \times 8$,....

29) 3, 7, 15, 31, 63, ?

Answer : 127
3+4 = 7, 7+8 = 15, 15+16 = 31, 31+32 = 63, 63+64= 127

Exercise

In each of the following questions a number series is given with one term missing. Choose the correct alternative that will continue the same pattern and fill in the blank spaces.

1. 8 15 24 35 48 63.....
2. 12 23 34 45.....
3. 96 48 52 26 30.....
4. 19 17 18 16.....

5. 7, 8, 49, 64,.....
6. 1 7 2 6 3 5 4.....
7. 10..... 16 17 22 23 28
8. 2 4 10 24 54 .....
9. 2 4 12 48.....
10. 20 10 22 9 24 8 26.....

ANSWERS

1	**2**	**3**	**4**	**5**
80	**56**	**15**	**17**	**223**
6	**7**	**8**	**9**	**10**
4	**14**	**116**	**240**	**7**

8.2 NUMBER ANALOGY

Solved Examples

1. The sum of first five prime numbers is:
   Answer : 28
2. The common factor of $(47^{43} + 43^{43})$ and $(47^{47} + 43^{47})$ is
   Answer : (47+43)
3. On dividing a number by 357, we get 39 as remainder. On dividing the same number by17, what will be the remainder ?
   Answer : 5
4. How many numbers between 200 and 600 are divisible by 4, 5 and6 ?
   Answer : 6
   Explanation:
   Every such number must be divisible by l.c.m. of 4, 5, 6. i.e. 60.
   Such numbers are 240, 300, 360, 420, 480, 540.
   Their number is 6.
5. The sum of first 45 natural numbers is:
   Answer : 1035
6. What least number must be added to 1056, so that the sum is completely divisible by 23 ?
   Answer : 2
7. What will be remainder when $(67^{67} + 67)$ is divided by 68 ?
   Answer : 66
8. 476 _ _ 0 is divisible by both 3 and 11. The non-zero digits in the hundred's and ten's places are respectively:
   Answer : 8 and 5
9. If $-1 \le x \le 2$ and $-1 \le y \le 3$ then least possible value of$(2y - 3x)$ is:
   Answer : –4
10. The difference between the local value and the face value of 7 in the numeral 32675149 is
    Answer : 69993
11. $392/\sqrt{x} = 28$
    Answer : 196
    Explanation:
    $392/\sqrt{x} = 28 \Rightarrow x = (392/28)^2 == 14 * 14 = 196$
12. How many 3-digit numbers are completely divisible 6 ?
    Answer : 150

13. Which of the following numbers will completely divide $(49^{15} - 1)$?
    Answer: 8
14. The least number by which 72 must be multiplied in order to produce a multiple of 112, is
    Answer: 14

Explanation:

Required number is divisible by 72 as well as 112, if it is divisible by their l.c.m., which is 1008. Now 1008 when divided by 72, gives quotient 14.

Required number = 14.

15. A 3-digit number 4a 3 is added to another 3-digit number 984 to give the four digit number 13b7, which is divisible by 11. Then,
    (a + b) is :
    Answer: 10
    Explanation:
    $a + 8 = b \Rightarrow b - a = 8$.
    Also 13b7 is divisible by 11,so $(7 + 3) - (b + 1) = 0$ or $b = 9$.
    Now,$b - a = 8$ and $b = 9$. So, $a = 1$. $a + b = (1 + 9) = 10$.
16. The largest 4 digit number exactly divisible by 88 is:
    Answer : 9944
17. Which one of the following numbers is exactly divisible by 11?
    Answer : 415624
18. If the number 481 * 673 is completely divisible by 9, then the smallest whole number in place of * will be:
    Answer : 7
19. -84 x 29 + 365 = ?
    Answer: -2701
20. The smallest 3 digit prime number is:
    Answer : 101

8.3 ODD MAN OUT

Solved Questions

1) Find the odd one out

a) crusade
b) expedition
c) cruise
d) campaign
Answer : C.
Cruise = a sea voyage for pleasure. All other words are related to 'journey on land, sea with an aim'.

2) Find the odd one out
a) flourish
b) renovate
c) blossom
d) thrive
Answer : B.
Renovate = to make new again. All other words are synonyms

3) Find the odd one out

a) Vapour

b) Mist

c) Hailstone

d) Fog

Answer : A.

All except Vapor are different forms of Precipitation.

4) Find the odd one out

a) Circle : Arc

b) Chair : Leg

c) Flower : Peta

d) Cover : Page

5) Find the odd one out

a) Ginger

b) Garlic

c) Chilli

d) Potato

6) Find the odd one out
   a) Mango
   b) Papaya
   c) Apple
   d) Orange
7) Find the odd one out
   a) Owl
   b) Eagle
   c) Hawk
   d) Parrot
   Answer : D.
8) Find the odd one out
   a) Debit
   b) Deposit
   c) Deduction
   d) Withdrawal
   Answer : B.
9) Find the odd one out
   a) Ball
   b) Specter
   c) Globe
   d) Sphere
10) Find the odd one out
   a) Den
   b) Roof
   c) Burrow
   d) Nest
   Answer : B

8.3 CODING AND DECODING

Solved Questions

1) If FRIEND is coded as HUMJTK, how can CANDLE be written in that code?

Answer : EDRIRL .

In the code, the first letter is the second alphabet, the second letter is the third alphabet, the third letter is the fourth alphabet and so on after the corresponding letter in the word.

2) In a certain code ADVENTURES is written as TRDESAUVEN. How is PRODUCED written in that code ?

Answer : IUIPGSSRNP .

The first and sixth, third and eighth, fifth and tenth letters of the word interchange places in the code.

3) If FRAGRANCE is written as SBHSBODFG, how can IMPOSING be written?

Answer : NQPTJOHJ .

Each letter in the word is moved one step forward and the first letter of the group, so obtained is put at the end, to obtain the code.

4) If ROBUST is coded as QNATRS in a certain language, which word would be coded as ZXCMP?

Answer : AYDNQ .

Each letter of the word is one step ahead of the corresponding letter of the code.

5) If PALE is coded as 2134, EARTH is coded as 41590, how can is PEARL be coded in that language?

Answer : 24153

The letters are coded accordingly P as 2, E as 4, A as 1, R as 5 and L as 3. So PEARL is coded as 24153.

6) If ROSE is coded as 6821, CHAIR is coded as 73456 and PREACH is coded as 961473, what will be the code for SEARCH?

Answer : 214673

The letters are coded accordingly S as 2, E as 1, A as 4, R as 6, C as 7 and H as 3, i.e., 214673

7) If in a certain code, GLAMOUR is written as IJCNMWP and MISRULE is written as OGUSSNC, then how will TOPICAL be written in that code?

Answer : VMRJACJ

The first, third and sixth letters of the word are each moved two steps forward, the second, fifth and seventh letters are each are moved two steps backward, while the fourth letter is moved one step forward.

8) If BE QUICK is coded as ZC OSGAI, then the code of the lat letter of the third word in the sentence I LOVE MY COUNTRY is

Answer : W
Each letter in the given message is moved two steps backward.

9) If ZEBRA can be written as 2652181, how can COBRA be written?

Answer : 3152181
Take A=1, B=2, C=3, ..., Z=26.
ZEBRA --> Z/E/B/R/A --> 26/5/2/18/1 --> 2652181.
COBRA --> C/O/B/R/A --> 3/15/2/18/1 --> 3152181.

10) If 'eraser' is called 'box', 'box' is called 'pencil', 'pencil' is called 'sharpener', and 'sharpener' is called 'bag', what will a child write with?

Answer : Sharpener .
A child will write with a 'pencil', and pencil is called 'sharpener'. So, a child will write with a 'sharpener'.

Exercise

1) If TRANSFER is coded as RTNAFSRE, then ELEPHANT would be coded as

Answer : LEPEAHTN .

2) In a certain code, PAINTER is written NCGPRGP, then REASON would be written as

Answer : PGYUMP

3) In a certain code, COMPUTER is written as RFUVQNPC. How is MEDICINE written in the same code ?

Answer : EOJDJEFM .

4) If VICTORY is coded as YLFWRUB, how can SUCCESS be coded ?

Answer : VXFFHVV

5) In a certain code, TOGETHER is written as RQEGRJCT. In the same code, PAROLE will be written as

6) If FRIEND is coded as HUMJTK, how is CANDLE written in that code ?

Answer : EDRIRL .

7) If in a certain language, COUNSEL is coded as BITIRAK, how is GUIDANCE written in that code ?

8) If CIGARETTE is coded as GICERAETT, then DIRECTION will be coded as

Answer : RIDTCENOI .

9) In a certain code, SYSTEM is SYSMET and NEARER is AENRER. What is the code for FRACTION?

10) If FRAGRANCE is written as SBHSBODFG, how can IMPOSING be written?

Answer : NQPTJOHJ

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	i) Verbal Reasoning	
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Day 51	9.2 Direction Sense Test-2	
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9.1 BLOOD RELATIONS

Introduction

The questions which are asked in this section depend upon Relation. You should have a sound knowledge of the blood relation in order to solve the questions. Family relation / Family tree / Bloodline related aptitude questions are pretty common in CSAT, CMAT, IBPS and CAT

Learning Objectives:

After reading this unit a student will learn to –

- Identify the chain of relationships between individuals.
- Analyze and decipher the correct relationship between the persons concerned

SOLVED EXAMPLES

1) Pointing to a man in a photograph, a woman said, "His brother's father is the only son of my grandfather." How is the woman related to the man in the photograph?

a) Sister b) Aunt c) Grandmother d)Daughter

Answer : A.
Only son of woman's grandfather – Woman's father;
Man's brother father – Man's father.
So, the woman is man's sister.

2) A told B,"The girl I met yesterday was the youngest daughter of the brother–in–law of my friend's mother." How is the girl related to A's friend?

a) Niece b) Couosin c) Friend d) Daughter

Answer : B.
Daughter of brother–in–law –> Niece;
Mother's niece –> Cousin.
So, the girl is the cousin of A's friend.

3) A and B are young ones of C. If C is the father of A but B is not the son of C. How are B and C related

a) Niece and Uncle b) Daughter and Father
c) Niece and Uncle d) Daughter and Mother

Answer : B.
C has two children A and B, if A is his son, B must be his daughter.

4) A man pointing to a photograph says. "The lady in the photograph is my nephew's maternal grandmother." How is the lady in the photograph related to the man's sister who has no other sister?

A. Mother–in–law B. Cousin C. Sister-in-law D. Mother

Answer : D.

The lady is the grandmother of man's sister's son
i.e., the mother of the mother of man's sister's son.
i.e., the mother of man's sister.

5) F is the brother of A, C is the daughter of A, K is the sister of F and G is the brother of C then who is the uncle of G?

A. C B. A C. C D. None of the above

Answer : B.

C & J are childern of A and F is the brother of A. So, F is uncle of C & J.

6) A woman walking with a boy meets another woman and on being asked about her relationship with the boy, she says, "My maternal uncle and his maternal uncle's maternal uncle are brothers." How is the boy related to the woman ?

A. Husband B. Brother-in-law C. Son D. Grandson

Answer : C.

Boy's maternal uncle will be brother of boy's mother. Maternal uncle of mother's brother and maternal uncle of lady are brother means lady is sister of mother's brother i.e., lady is the mother of the boy. So, the boy is woman's son.

7) Six members of a family ABCDE and F are travelling together. B is the son of C but C is not the mother of B. A and C are married couple. E is the brother of C. D is the daughter of A. F is the brother of B. How many male members are there in the family?

A) 4 B) 3 C) 2 D) 1

Answer : A.
E (Brother) C (Husband) A (Wife)
F and B (Sons) D (Daughter)
A is the wife of C and their daughter is D. The ramaining members are male members.

8)

(I). A, B, C, D, E and F are six members of a family.
(II). One couple has parents and their children in the family.
(III). A is the son of C and E is the daughter of A.
(IV). D is the daughter of F who is the mother of E.

Which of the following pairs is the parents of the couple ?

A) CF B) AB C) AF D) BC

Answer : D.
E is the daughter of A and F is the mother of E.
So, A is the father of E and hence the husband of F.
Now, D is the daughter of F. So, D and E are the daughters of A and F.
Also, A is the son of C. Now, only B remains. Thus, B and C are the parents of A.
Hence, B and C are the parents of the couple.

9) A woman introduces a man as the son of the brother of her mother. How is the man related to the woman?

A) Uncle B) Grandson C) Cousin D) Son

Answer : C.

Brother of mother– Uncle;
Uncle's son – Cousin

Solved Examples

1) A told B that C is his father's nephew. D is A's cousin but not the brother of C. What relationship is there between D and C ?

A) Father B) Sisters C) Aunt D) Mother

Answer : B.

A has two cousins C and D.
Since C is male, D must be female.
And, both are the nephew and niece of A's father.

2) A, B, C, D, E, F and G are members of a family consisting of four adults and three children, two of whom, F and G are girls. A and D are brothers and A is a doctor. E is an engineer married to one of the brothers and has two children. B is married to D and G is their child. Who is C ?

A) E's daughter B) F's father C) G's brother D) A's son

Answer : D.

E is married to A or D. But B is married to D.
Thus, E is married to A. Thus, A, B, D, E are the four adults and C, F, G are the three children in the family.
B and D have a child G.
A and E have two children. They are C and F.
Now, only F and G are girls. So, C is a boy.
Thus, C is A's or E's son.

3) Pointing towards a person, a man said to a woman, "His mother is the only daughter of your father." How is the woman related to that person?

A) Sister B) Daughter C) Mother D) Wife

Answer : C.
The only daughter of woman's father is herself.
So, the person is woman's son.
i.e., the woman is the person's mother.

4) Pointing out to a girl a man said "My uncle is the uncle of this girl's uncle". How is the man related to that girl ?

A) Cousin B) Brother C) Father in law D) Father

Answer : D.
The man's uncle and the uncle of girls uncle is the same person.
So he may be the father or uncle of the girl.

5) In a family, there are six members A, B, C, D, E and F. A and B are a married couple, A being the male member. D is the only son of C, who is the brother of A. E is the sister of D. B is the daughter-in-law of F, whose huasband has died. How is E related to C ?

A) Nephew B) Daughter C) Sister D) Son-in-Law

Answer : B.
A is a male and married to B.
So, A is the husband and B is the wife.
C is the brother of A. D is the son of C.
E, who is the sister of D will be the daughter of C.
B is the daughter-in-law of F whose husband has died means F is the mother of A.
Hence, E is the daughter of C.

6) If S is the brother of N, the sister of N is M, the brother of P is J and the daughter of S is P then who is the uncle of J?

A) J B) S C) P D) M

Answer : C.
As J and P are real brothers and their father is S whose brother is N, so N is the uncle of J and P.

7) There are six persons A, B, C, D , E and F. C is the sister of F. B is the brother of E's husband. D is the father of A and grandfather of F. There are two fathers, three brothers and a mother in the group. Who is the mother?

A) E B) D C) C D)

Answer : A.
D is father of A and grandfather of F.
So, A is father of F. Thus, D and A are the two fathers.
C is the sister of F. So, C is the daughter of A.
Since there is only one mother, it is evident that E is the wife of A and hence the mother of C and C and F.
So, B is brother of A. There are three brothers. So, F is the brother of C.
Hence, E is the mother.

8) A girl introduced a boy as the son of the daughter of the father of her uncle. The boy is girl's

A) Uncle B) Nephew C) Brother D) Son

Answer : C.
Daughter of uncle's father – Uncle's sister – Mother;
Mother's son – Brother.

9) A is the brother of B and K, D is the mother of B and E is the father of A. Which of the following statement is not definitely true?

A) A is the son of D B) A is the father of K
C) B is the brother of K D) A is the son of E

Answer : B.
A, B and K are brothers and sisters.E and D may be husband and wife.
So, A is the son of E and D both.

10) There are six persons A, B, C, D , E and F. C is the sister of F. B is the brother of E's husband. D is the father of A and grandfather of F. There are two fathers, three brothers and a mother in the group. Who is E's husband?

A) A B) B C) C D)

Answer : A.
D is father of A and grandfather of F.
So, A is father of F.
Thus, D and A are the two fathers.
C is the sister of F. So, C is the daughter of A.
Since there is only one mother, it is evident that E is the wife of A and hence the mother of C and C and F.
So, B is brother of A. There are three brothers.
So, F is the brother of C.
Hence, A is E's husband.

Solved Examples

1) Pointing to a photograph, a man said, "I have no brother or sister but that man's father is my father's son." Whose photograph was it?

A) His own B) His nephew's C) His father's D) His son's

Answer : D.
Since the narrator has no brother, his father's son is he himself.
So, the man who is talking is the father of the man in the photograph.
Thus, the man in the photograph is his son.

2) A is the mother of B and C. If D is the husband of C. What is A to D.

A) Mother B) Sister C) Aunt D) Mother-in-law

Answer : D.
A is the mother of C and C is the wife of D.
So, A is the mother-in-law of D, or D is the son-in-law of A.

3) There are six persons A, B, C, D , E and F. C is the sister of F. B is the brother of E's husband. D is the father of A and grandfather of F. There are two fathers, three brothers and a mother in the group. Which of the following is a group of brothers ?

A) ABD B) ABF C) BFC D) BDF

Answer : B.
D is father of A and grandfather of F. So, A is father of F.
Thus, D and A are the two fathers.
C is the sister of F. So, C is the daughter of A.
Since there is only one mother, it is evident that E is the wife of A and hence the mother of C and C and F.
So, B is brother of A.
There are three brothers. So, F is the brother of C.
Hence, B and A are brothers.
F is the brother of C. So, three brothers are A, B, F.

4) A man said to a lady, "Your mother's husband's sister is my aunt." How is the lady related to the man?

A) Sister B) Daughter C) Mother D) Grand

Answer : A.
Lady's mother husband – Lady's father;
Lady's father's sister – Lady's aunt.
So, lady's aunt is man's aunt and therefore lady is man's sister.

5) A family consists of six members P, Q, R, X, Y and Z. Q is the son of R but R is not mother of Q. P and R are a married couple. Y is the brother of R. X is the daughter of P. Z is the brother of P. Who is the father of Q ?

A) P B) R C) X D)

Answer : B.
Q is the son of R but R is not the mother. So, R is the father of Q.
P is married to R. So, P is the wife of R and the mother of Q.
X is the daughter of P and hence of R and so, she is the sister of Q.
Y is the brother of R and Z is the brother of P.
R is the father of Q.

6) A, B, C, D, E and F are members of a club. There are two married couples in the goup. A is the brother of D's Husband. C is the president of Women's Association. F is a Sitar Player, and Bachelor. B's wife is not a member of the Club. Four of them belong to the same family. B and F are colleagues in the club. How is F related to B?

A) Wife B) Husband C) Father D) It is not possible to determine

Answer : D.
According to the data there are two female members D and C of the club and data is not sufficient regarding B and F.

7) If X is the brother of the son of Y's son, how is X related to Y?

A) Cousin B) Son C) Grandson D) Brother

Answer : C.
Son of Y's son – Grandson;
Brother of Y's grandson – Y's grandson.
So X is Y's grandson.

8) Introducing a man, a woman said, "His wife is the only daughter of my father." How is that man related to the woman?

A) Father–in–law B) Husband C) Maternal uncle D) Brother

Answer : B.

Only daughter of my father – Myself.
So, the man is woman's husband.

9) A family consists of six members P, Q, R, X, Y and Z. Q is the son of R but R is not mother of Q. P and R are a married couple. Y is the brother of R. X is the daughter of P. Z is the brother of P. How many children does P have ?

A) 1 B) 2 C) 3 D)

Answer : B.

Q is the son of R but R is not the mother.
So, R is the father of Q.
P is married to R. So, P is the wife of R and the mother of Q.
X is the daughter of P and hence of R and so she is the sister of Q.
Y is the brother of R and Z is the brother of P.
Hence, Q is the son of P and X is the daughter of P.
So, P has two children.

10) A family consists of six members P, Q, R, S, T and U. There are two married couples. Q is a doctor and the father of T. U is grandfather of R and is a contractor. S is grandmother of T and is a housewife. There is one doctor, one contractor, one nurse, one housewife and two students in the family. What is the profession of P ?

A) Nurse B) Doctor C) Contractor D) Housewife

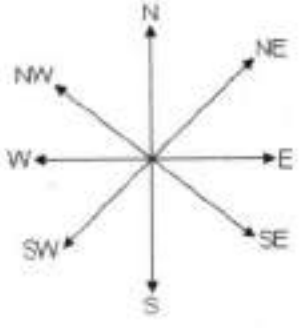
Answer : A.
Q, the Doctor, is the father of T.
S, the Housewife, is the grandmother of T and hence the mother of Q.
Since there are only two married couples one being that of Q, the grandfather of R i.e., U must be married to S.
Thus, R and T will be both children of Q and these must be the students.
So, P, who remains, shall be the wife of Q and she alone can be the nurse

9.2 DIRECTION SENSE TEST

INTRODUCTION

In a number of competitive exams, there are questions, which test the student's sense of direction. The questions typically involve a person moving certain distances in specified directions. Then, the student is asked to find out the net distance travelled between two points. The easiest way of solving these problems is to draw a diagram as you read information about the problem and let the diagram reflect all the information given in the problem.

The distance from a particular point after traveling a distance of x metres in the horizontal direction and a distance of y metres in the vertical direction is equal to $\sqrt{x^2+y^2}$ (Please note that in common usage, north-south direction is referred to as "vertical" direction and east-west direction is referred to as "horizontal" direction). To solve these types of problems, the student should know the directions properly without any confusion. The following diagram shows all the directions and the student should memorize the diagram.



Learning Objectives:

After reading this unit a student will learn to –

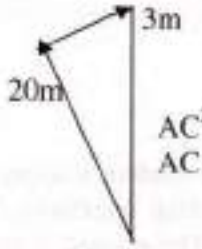
- Solve puzzles based on direction
- Understand the follow-up of directions and ascertain the final direction.
- Judge the distance between any two points by tracing the direction correctly.

Solved Examples

1. If you are facing North West and move 20 m forward and turn right and move 3 m , then you are

(a) North of your initial position (b) South of your initial position
(c) East of your initial position (d) West of your initial position.

Ans (a)



$AC^2 = AB^2 + BC^2 = 20^2 + 3^2 = 400+9$
$AC = 20.2$

2. I am facing south – I turned right and walked 40 m, then I turned right again and walked 20 m. Then I turned left and walked 20 m and then turned right and walked 40 m. Then I turned right again and walked 120 m. In which direction am I from the starting point?

a) North east (b) South east (c) South west (d) North west

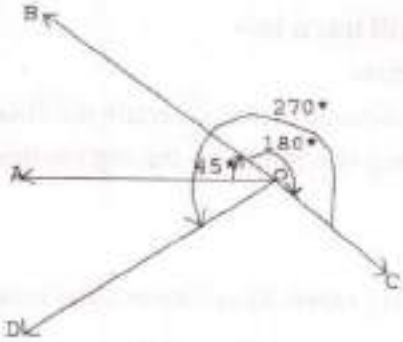
Ans : (a)

3. A man is facing west. He turns 45 degree in the clockwise direction and then another 180 degree in the same direction and then 270 degree in the anticlockwise direction. Find which direction he is facing now?

1. South-West
2. West
3. South
4. East-South

Answer: Option A

Explanation:



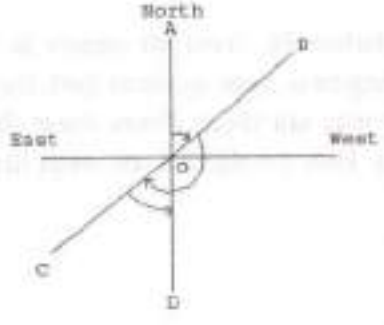
Please refer to the explanation image.
The man firstly faces the direction OA. On moving 45 degree clockwise [Please check carefully always if clockwise or anticlockwise], he faces the direction OB.

Now again he moved 180 degree clockwise, now he will be facing OC. From here he moved 270 degree anticlockwise, Finally he is facing OD, which is South west.

4. A man is facing north. He turns 45 degree in the clockwise direction and then another 180 degree in the same direction and then 45 degree in the anticlockwise direction. Find which direction he is facing now?
   1. North
   2. East
   3. West
   4. South

Answer: Option D

Explanation:

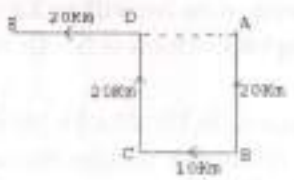


Please refer to the explanation image.
The man firstly faces the direction OA. On moving 45 degree clockwise, he faces the direction OB.
Now again he moved 180 degree clockwise, now he will be facing OC. From here he moved 45 degree anticlockwise, Finally he is facing OD, which is South direction.

5. One day, Raviraj left home and cycled 20 Km southwards, turned right and cycled 10 km and turned right and cycled 20 Km and turned left and cycled 20 Km. How many kilometres will he have to cycle to reach his home straight ?

   1. 50 Km
   2. 30 Km
   3. 40 Km
   4. 60 Km

Answer: Option B
Explanation:



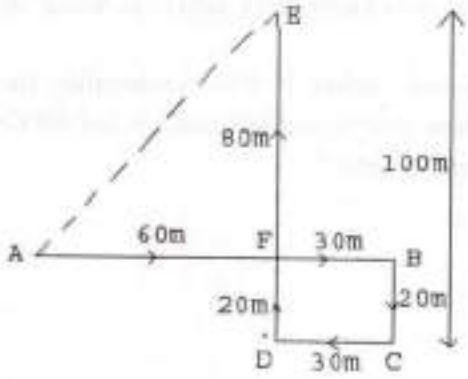
Please refer to explanation image,
Raviraj starts from home at A, moves 20 Km in south upto B. Then he turns right and moves 10 Km upto C, then he turns right and moves 20 Km upto D, then he turns lefts and moves 20 Km upto E.

So from image it is clear that, if he moves straight then he will have to move
AD+DE, AD = BC = 10 Km
So, he will have to move 10 + 20 = 30 Km

6. A child is looking for his father. He went 90 meters in the east before turning to his right. He went 20 meters before turning to is right again to look for his father at his uncle's place 30 meters from this point. His father was not there. From there, he went 100 meters to his north before meeting his father in a street. How far did the son meet his father from starting point?

1. 80 metre
2. 90 metre
3. 100 metre
4. 110 metre

Answer: Option C
Explanation:



Clearly, the child moves from A to B 90 metres eastwards upto B, then turns right and moves 20 metre upto C, then turns right and moves upto 30 metre upto D. Finally he turns right and moves upto 100 metre upto E.
So AB = 90 metre, BF = CD = 30 metre,
So, AF = AB - BF = 60 metre

Also DE = 100 metre, DF = BC = 20 metre
So, EF = DE - DF = 80 metre
as we can see in image that triangle AFE is a right angled triangle and we are having two sides, need to calculate third one, so we can apply Pythagoras theorem here
So from starting point his father was 100 metre away.

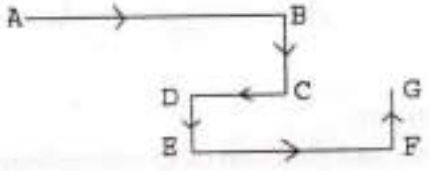
Exercise

1. Kunal walks 10 km towards North. From there he walks 6 Km towards South. Then, he walks 3 Km towards east. How far and in which direction is he with reference to his starting point?
    1. 5 Km North
    2. 5 Km South
    3. 5 Km East
    4. 5 Km North-East

2. Gaurav walks 20 metres towards North. He then turns left and walks 40 metres. He again turns left and walks 20 metres. Further, he moves 20 metres after turning to the right. How far is he from his original position ?
    1. 40 metres
    2. 50 metres
    3. 60 metres
    4. 70 metres

3. A dog runs 20 metre towards East and turns Right, runs 10 metre and turns to right, runs 9 metre and again turns to left, runs 5 metre and then turns to left, runs 12 metre and finally turns to left and runs 6 metre. Now which direction dog is facing?
    1. East
    2. North
    3. West
    4. South

Answer: Option B
Explanation:



Now dog is facing North.

4. I am facing South. I turn right and walk 20 metre. Then I turn right again and walk 10 metre. Then I turn left and walk 10 metre and then turning right walk 20 metre. Then I turn right again and walk 60 metre. In which direction am I from the starting point ?

   1. North-East
   2. Norst-West
   3. North
   4. West

5. Rohit walked 25 metres towards South. Then he turned to his left and walked 20 metres. He then turned to his left and walked 25 metres. He again turned to his right and walked 15 metres. At what distance is he from the starting point and in which direction ?

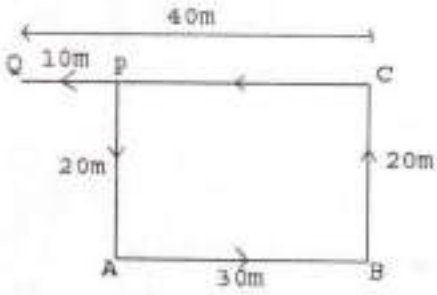
   1. 35 metre, North
   2. 30 metre, South
   3. 35 metre, East
   4. 30 metre, North

6. Starting from a point P, Sachin walked 20 metres towards South. He turned left and walked 30 metres. He then turned left and walked 20 metres. He again turned left and walked 40 metres and reached a point Q. How far and in which direction is the point Q from the point P ?

   1. 30 metres, West
   2. 10 metres, West
   3. 30 metres, North
   4. 10 metres, North

Answer: Option B

Explanation:



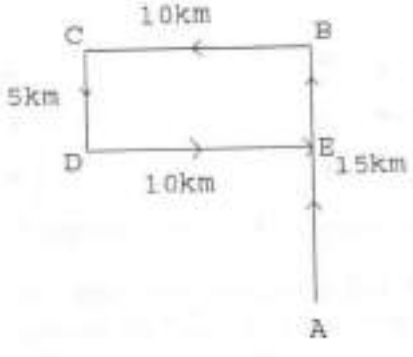
Please refer to the image for movements.
Distance from the P to Q is 10 metres and direction of Q with reference to to P is west.

7. From his house, Lokesh went 15 kms to the North. Then he turned West and covered 10 kms. Then he turned South and covered 5 kms. Finally, turning to East, he covered 10 kms. In which direction is he from his house?

   1. East
   2. North
   3. West
   4. South

Answer: Option B

Explanation:

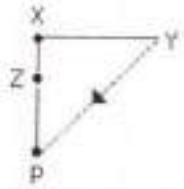


Please check the movements of Lokesh in the figure.
Finally he is to the North to his house.

Solved Problems

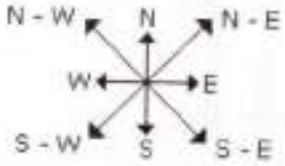
1. One morning Udai and Vishal were talking to each other face to face at a crossing. If Vishal's shadow was exactly to the left of Udai, which direction was Udai facing?
   A. East B. West C.North D. South
   Answer: Option C
   Explanation:

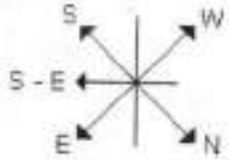
2. Y is in the East of X which is in the North of Z. If P is in the South of Z, then in which direction of Y, is P?
   A. North B. South C. South-East D. None of these
   Answer: Option D
   Explanation:



P is in South-West of Y.

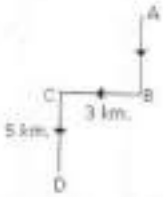
3. If South-East becomes North, North-East becomes West and so on. What will West become?
   A. North-East B. North-West C. South-East D. South-West
Answer: Option C
Explanation:





It is clear from the diagrams that new name of West will become South-East.

4. A man walks 5 km toward south and then turns to the right. After walking 3 km he turns to the left and walks 5 km. Now in which direction is he from the starting place?
   A. West B. South C. North-East D. South-West
Answer: Option D
Explanation:



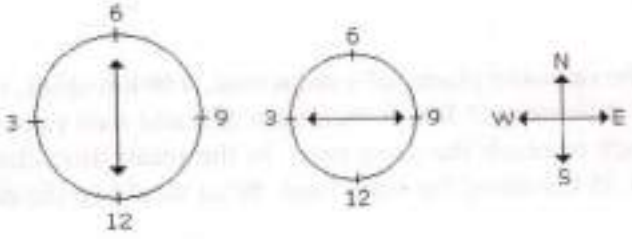
Hence required direction is South-West.

5. Rahul put his timepiece on the table in such a way that at 6 P.M. hour hand points to North. In which direction the minute hand will point at 9.15 P.M. ?

   A.South-East B. South C. North D.West

Answer: Option D

Explanation:



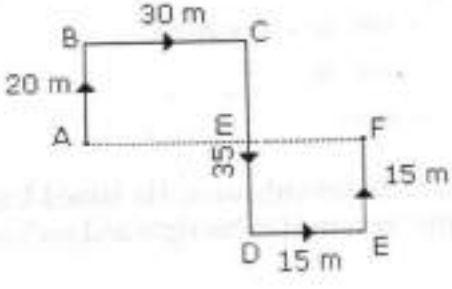
At 9.15 P.M., the minute hand will point towards west.

6. Rasik walked 20 m towards north. Then he turned right and walks 30 m. Then he turns right and walks 35 m. Then he turns left and walks 15 m. Finally he turns left and walks 15 m. In which direction and how many metres is he from the starting position?

A. 15m West B. 30m East C. 30m West D.45m East

Answer: Option D

Explanation:



Required distance = AF

= 30 + 15

= 45 m.

From the above diagram, F is in East direction from A.

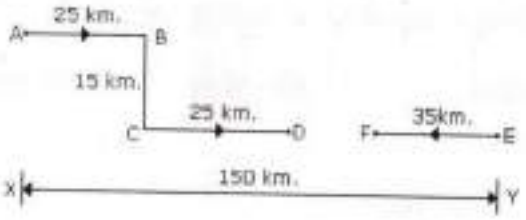
Hence the required answer is '45 m East'.

7. Two cars start from the opposite places of a main road, 150 km apart. First car runs for 25 km and takes a right turn and then runs 15 km. It then turns left and then runs for another 25 km and then takes the direction back to reach the main road. In the mean time, due to minor break down the other car has run only 35 km along the main road. What would be the distance between two cars at this point?

A) 65 km B) 75 km C) 80km D) 85km

Answer: Option A

Explanation:



Required distance = DF

= 150 - (25 + 25 + 35)

= 150 - 85

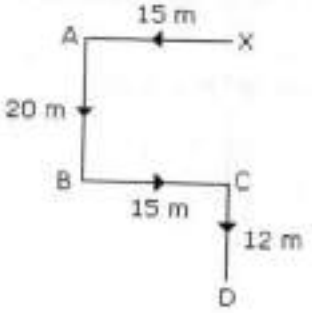
= 65 km.

8. Starting from the point X, Jayant walked 15 m towards west. He turned left and walked 20 m. He then turned left and walked 15 m. After this he turned to his right and walked 12 m. How far and in which directions is now Jayant from X?

A.32m, South B. 47m, East C.42m, North D.27m, South

Answer: Option A

Explanation:



Required distance = 20 + 12

= 32 m in south direction

9. One evening before sunset Rekha and Hema were talking to each other face to face. If Hema's shadow was exactly to the right of Hema, which direction was Rekha facing?

A. North B.South C.East D. Data is inadequate

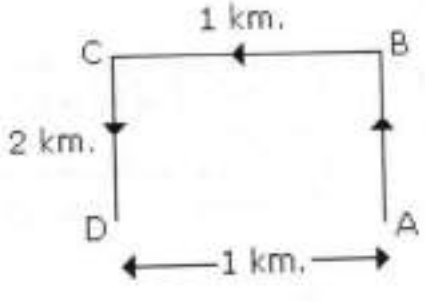
Answer: Option B
Explanation:

In the evening sun sets in West. Hence then any shadow falls in the East. Since Hema's shadow was to the right of Hema. Hence Rekha was facing towards South.

10. A boy rode his bicycle Northward, then turned left and rode 1 km and again turned left and rode 2 km. He found himself 1 km west of his starting point. How far did he ride northward initially?

A.1 km B. 2km C.3km D.5km

Answer: Option B
Explanation:



The boy rode 2 km. Northward.

9.3 SEATING ARRANGEMENT

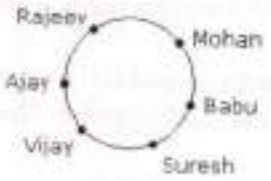
In order to solve seating arrangement questions, first of all diagram should be made. By doing so questions are easily and quickly solved.

Solved Problems

Example 1:

1. 6 Boys are sitting in a circle and facing towards the centre of the circle.
2. Rajeev is sitting to the right of mohan but he is not just at the left of Vijay.
3. Suresh is between Babu and Vijay.
4. Ajay is sitting to the left of Vijay.
5. Who is sitting to the left of Mohan ?

Solution :



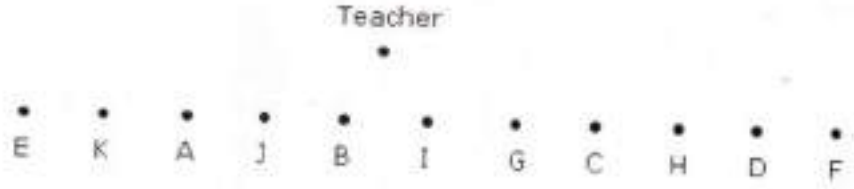
Hence, Babu is sitting to the left of Mohan.

Example 2:

1. Eleven students A, B, C, D, E, F, G, H, I, J and K are sitting in first line facing to the teacher.
2. D who is just to the left of F, is to the right of C at second place.
3. A is second to the right of E who is at one end.
4. J is the nearest neighbour of A and B and is to the left of G at third place.
5. H is next to D to the right and is at the third place to the right of I.

Who is just in the middle ?

Solution :



Hence, I is just in the middle.

Example 3:

Siva, Sathish, Amar and Praveen are playing cards. Amar isto the right of Sathish, who is to the right of Siva.

Who is to the right of Amar ?

Solution :

Hence Praveen is to the right of Amar.

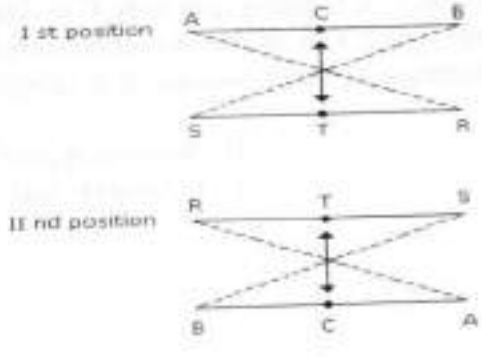
Example 4:

1. A, B and C are three boys while R, S and T are three girls. They are sitting such that the boys are facing the girls.
2. A and R are diagonally opposite to each other.
3. C is not sitting at any of the ends.
4. T is left to R but opposite to C.

(A). Who is sitting opposite to B ?

(B). Who is sitting diagonally opposite to B ?

Solution :



(A). Hence, R is sitting opposite to B.

(B). Hence, S is sitting diagonally opposite to B.

1. A, P, R, X, S and Z are sitting in a row. S and Z are in the centre. A and P are at the ends. R is sitting to the left of A. Who is to the right of P ?

A) A B) X C) S D) Z

Answer & Explanation

Answer: Option B
Explanation:
The seating arrangement is as follows:

•	•	•	•	•	•
P	X	S	Z	R	A

Therefore, right of P is X.
There are 8 houses in a line and in each house only one boy lives with the conditions as given below:

1. Jack is not the neighbour Siman.
2. Harry is just next to the left of Larry.
3. There is at least one to the left of Larry.
4. Paul lives in one of the two houses in the middle.
5. Mike lives in between Paul and Larry.

If at least one lives to the right of Robert and Harry is not between Taud and Larry, then which one of the following statement is not correct?

A. Robert is not at the left end.
B. Robert is in between Simon and Taud.
C. Taud is in between Paul and Jack.
D. There are three persons to the right of Paul.

Answer: Option C

A, B, C, D and E are sitting on a bench. A is sitting next to B, C is sitting next to D, D is not sitting with E who is on the left end of the bench. C is on the second position from the right. A is to the right of B and E. A and C are sitting together. In which position A is sitting?

A. Between B and D
B. Between B and C
C. Between E and D
D. Between C and E

Answer: Option C
Answer: Option B
Explanation:

•	•	•	•	•
E	B	A	C	D

Therefore, A is sitting in between B and C.

Solved Problems

Example 1:

P,Q,R,S,T, U,V and W are sitting round the circle and are facing the centre:

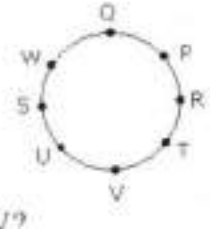
1. P is second to the right of T who is the neighbourh of R and V
2. S is not the neighbor of P.
3. V is the neighbor of U
4. Q is not between S and W , W is not between U and S.

1. Which two of the following are not neighbours?

A. RV B. UV C. RP D. QW

Answer: Option A

Explanation:

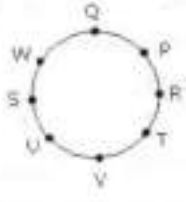


2. Which one is immediate right to the V?

A) P B) U C) R D) T

Answer: Option D

Explanation:



T is immediate right to the V.

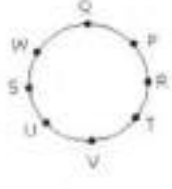
3. Which of the following is correct ?

A) P is to the immediate right of Q B) R is between U and V

C) Q is to the immediate left of W D) U is between W and S

Answer: Option C

Explanation:



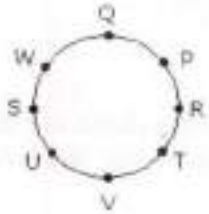
4. What is the position of S ?

A) Between U and V B) Second to the right of P

C) To the immediate right of W D) Data inadequate

Answer: Option C

Explanation:



Example 2:

Five girls are sitting on a bench to be photographed. Seema is to the left of Rani and to the right of Bindu. Mary is to the right of Rani. Reeta is between Rani and Mary.

1. Who is sitting immediate right to Reeta ?

   A) Bindu B) Rani C) Mary D) Seema

   Answer: Option C

   Explanation:

   • • • • •

   Bindu Seema Rani Reeta Mary

   Mary is sitting immediate right to Reeta.

2. Who is in the middle of the photograph?

   A) Bindu B) Rani C) Reeta D) Seema

   Answer: Option B

   Explanation:

   • • • • •

   Bindu Seema Rani Reeta Mary

   Rani is in the middle of the photograph.

3. Who is second from the right?

   A) Mary B) Rani C) Reeta D) Bindu

   Answer: Option C

   Explanation:

   • • • • •

   Bindu Seema Rani Reeta Mary

   Reeta is sitting second from the right.

4. Who is second from the left in photograph?

   A) Reeta B) Mary C) Bindu D) Seema

   Answer: Option D

   Explanation:

   • • • • •

   Bindu Seema Rani Reeta Mary

   Seema is sitting second from the left in photograph.

Day	Topic	Page
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	Unit-10	
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Day 55	10.2 Ranking and Time Sequence Test-1	130-136
Day 56	Test-4	
Day 57	10.2 Ranking and Time Sequence Test-2	
Day 58	10.3 Mathematical Operations	137-139
Day 59	10.3 Mathematical Operations	
Day 60	10.3 Mathematical Operations	

10.1 PROBLEM SOLVING TECHNIQUES AND LOGICAL REASONING

INTRODUCTION

Logical Reasoning consists of question types which test both your mathematical and logical abilities. These questions are there in most of the examinations, and present an interesting challenge to students. Imagine a situation. A group of people are sitting around a table, you are given a few clues with respect to what these people are wearing, what is their age and what is their height. Some of the data is missing, and some of the names are missing too. Now you need to figure out the puzzle, identify everyone and possibly their seat, all with the help of the clues provided. Sounds interesting? This is logical reasoning and welcome to the world of using the wits of your mind.

Learning Objectives

After reading this unit a student will learn to –

- Analyse the complex figures and count the number of geometrical figures in it

Exercise

1. My successor's father is my fathers son. and i dont have any brothers or sons. Who is my successor?

   A) nephew B) daughter C) niece D) myself

2. Two people were walking in opposite directions.both of them walked 6 miles forward then took right and walked 8 miles.how far is each from starting positions?

   A) 14 miles and 14 miles B) 6 miles 6 miles C) 10 miles 10 miles D) 16 miles 16 miles

3. When asked in an exam how much time is left, the teacher answered that the amount of time left is 1/5 of the time already completed. How much time is left

   A) 10 minutes B) 5 minutes C) 15 minutes D) 12

4. Two people on cycle are traveling at 10 miles / hour in opposite direction. When they are at a distance of 50 miles, a housefly lands on the first cyclist and then flies to the other at a speed of 16 miles/hour. What is the distance covered by fly?

A) 123.3 B) 143.3 C) 133.3 D) 140.5

5. A person has certain number of cows and birds.they have 172 eyes and 344 legs.how many cows and birds does he have?

A) 10 birds and 76 cows
B) 20 birds and 56 cows
C) 0 birds and 86 cows
D) 10 birds and 86 cows

Answer: *0 birds and 86 cows*

6. When a number is multiplied by 13, it becomes greater to 105 by an amount with which it is lesser to 105 by now. What is the number

A) 10 B) 25 C) 15 D) 30

Answer: *15*

7. Brothers and sisters have I none, but that mans father is my fathers son. Who is that man?

A) Your daughter B) Your nephew C) Your son D) Your causine

Answer: *Your son*

8. A person has 14 red socks and 14 white socks in a drawer. What is the minimum number of socks that he should take to get a correct pair?

A) 5 B) 3 C) 6 D) 4

Answer: *3*

9. From the following sequence, find out how many odd numbers are there in the sequence which are immediately followed by an odd number

5 1 4 7 3 9 8 5 7 2 6 3 1 5 8 6
3 8 5 2 2 4 3 4 9 6

A) 1 B) 2 C) 3 D) 4
E) More than 4

Answer : E

10.2 RANKING AND TIME SEQUENCE TEST

Ranking

Learning Objectives

The student will be able to:

- Calculate the total number of persons in a group / row /queue if the rank of the person from the top and from the bottom is given.

Example: Ravi is fourteenth from the right end in a row of forty boys what is his position from left end.

a) 24 b) 25 c) 26 d) 27 e) none

Ans: d

Try yourself:

In a class of 60, where girls are twice that of boys, Kamal ranked 17th from the top. If there are 9 girls ahead of Kamal, how many boys are after him in rank.

a) 3 b) 7 c) 12 d) 13

Ans: c

Time sequence test:

Learning Objectives

The student will be able to

- Calculate a particular year, month, day, date and time basing on the sequence of the sentences relating to them.

Example: If the seventh day of the month is three days earlier than Friday, what day will it be the 19th day of the month.

a) Sunday b) Monday c) Wednesday d) Saturday

Ans: a

Try yourself: If 1st October is Sunday, then 1st November will be

a) Monday b) Tuesday c) Wednesday d) Thursday

Ans: c

Exercise

1. In a row of trees, one tree is fifth from either end of the row. How many trees are there in the row ?

Options:

A. 8 B. 9 C. 10 D. 11

Answer: Option B

2. In a queue, Amrita is 10th from the front while Mukul is 25th from behind and Mamta is just in the middle of the two. If there be 50 persons in the queue. What position does Mamta occupy from the front ?

Options:

A. 20th B. 19th C. 18th D. 17th

Answer: Option C

3. Raman ranks sixteenth from the top and forty ninth from the bottom in a class. How many students are there in the class?

Options:

A. 64 B. 65 C. 66 D. Cannot be determined E. None of these

Answer: Option A

4. Sanjeev ranks seventh from the top and twenty eight from the bottom in a class. How many students are there in the class ?

Options:

A. 37 B. 36 C. 35 D. 34

Answer: Option D

5. If Atul finds that he is twelfth from the right in a line of boys and fourth from the left, how many boys should be added to the line such that there are 28 boys in the line ?

Options:

A. 12 B. 13 C. 14 D. 20 E. None of these

Answer: Option B

6. Manisha ranked sixteenth from the top and twenty ninth from the bottom among those who passed an examination. Six boys did not participate in the competition and five failed in it. How many boys were there in the class ?

Options:

A. 40 B. 44 C. 50 D. 55 E. 58

Answer: Option D

7. Some boys are sitting in a row. P is sitting fourteenth from the left and Q is seventh from the right. If there are four boys between P and Q, how many boys are there in the row ?

Options:

A. 25 B. 23 C. 21 D. 19 E. None of these

Answer: Option A

8. Aruna ranks twelfth in a class of forty-six. What will be her rank from the last?

Options:

A. 33 B. 34 C. 35 D. 37 E. None of these

Answer: Option C

9. Manoj and Sachin are ranked seventh and eleventh respectively from the top in a class of 31 students. What will be their respective ranks from the bottom in the class ?

Options:

A. 20th and 24th B. 24th and 20th C. 25th and 21st D. 26th and 22nd E. None of these

Answer: Option C

10. Ravi is 7 ranks ahead of Sumit in a class of 39. If Sumit`s rank is seventeenth from the last, what is Ravi`s rank from the start ?

Options:

A. 14th B. 15th C. 16th D. 17th

Answer: Option C

11. Kailash remembers that his brother Deepak`s birthday falls after 20th May but before 28th May, while Geeta remembers that Deepak`s birthday falls before 22nd May but after 12th May. On what date Deepak`s birthday falls ?

Answer: Option B

12. Sangeeta remembers that her father`s birthday was certainly after eighth but before thirteenth of December. Her sister Natasha remembers that their father`s birthday was definitely after ninth but before fourteenth of December. On which date of December was their father`s birthday ?

Options:

A. 10th B. 11th C. 12th D. Data inadequate E. None of these

Answer: Option D

13. Standing on a platform, Amit told Sunita that Aligarh was more than ten kilometers but less than fifteen kilometers from there. Sunita knew that it was more than twelve but less then fourteen kilometers from there. If both of them were correct, which of the following could be the distance of Aligarh from the platform ?

Options:

A. 11 km B. 12 km C. 13 km D. 14 km E. 15km

Answer: Option C

14. Ashish leaves his house at 20 minutes to seven in the morning, reaches Kunal`s house in 25 minutes, they finish their breakfast in another 15 minute and leave for their office which takes another 35 minutes, At what time do they leave Kunal`s houses to reach their office ?

Options:

A. 7.40 a.m. B. 7.20 a.m. C. 7.45 a.m. D. 8.15 a.m. E. 7.55 a.m.

Answer: Option B

15. Ajay left home for the bus stop 15 minutes earlier than usual. It takes 10 minutes to reach the stop. He reached the stop at 8.40 a.m. What time does he usually leave home for the bus stop ?

Options:

A. 8.30 a.m. B. 8.45 p.m. C. 8.55 a.m. D. Data inadequate E. None of these

Answer: Option E

16. Reaching the place of meeting on Tuesday 15 minutes before 08.30 hours, Anuj found himself half an hour earlier than the man who was 40 minutes late. What was the scheduled time of the meeting ?

Options:

A. 8.00 hrs B. 8.05 hrs C. 8.15 hrs D. 8.45 hrs

Answer: Option B

17. The priest told the devotee, "The temple bell is rung at regular intervals of 45 minutes. The last bell was rung five minutes ago. The next bell is due to be rung at 7.45 a.m." At what time did the priest give this information to the devotee ?

Options:

A. 7.40 a.m. B. 7.05 a.m. C. 7.00 a.m. D. 6.55 a.m. E. None of these

Answer: Option B

18. The train for Lucknow leaves every two and a half hours from New Delhi Railway Station. An announcement was made at the station that the train for Lucknow had left 40 minutes ago and the next train will leave at 18.00 hrs. At what time was the announcement made ?

Options:

Answer: Option E

19. An application was received by inward clerk in the afternoon of the week day. Next day he forwarded it to the table of the senior clerk, who was on leave that day. The senior clerk next day evening put up the application to the desk officer. Desk officer studied the application and disposed off the matter on the same day i.e. Friday. Which day was the application received by the inward clerk ?

Options:

A. Monday B. Tuesday C. Wednesday D. Earlier week`s Saturday E. None of these

Answer: Option C

20. There are twenty people working in an office. The first group of five works between 8.00 A.M. and 2.00 P.M. The second group of ten works between 10.00 A.M. and 4.00 P.M. And the third group of five works between 12 noon and 6.00 P.M. There are three computers in the office which all the employees frequently use. During which of the following hours the computers are likely to be used most ?

Options:

A. 10.00 A.M. -- 12 noon B. 12 noon -- 2.00 P.M.

C. 1.00 P.M. -- 3.00 P.M. D. 2.00 P.M. -- 4.00 P.M.

Answer: Option B

Exercise

1. A monkey climbs 30 feet before at the beginning of each hour and rests for a while when he slips back 20 feet before he again starts climbing in the beginning of the next hour. If he begins his ascent at 8.00 a.m, at what time will he first touch a flag at 120 feet from the ground ?

Options:

A. 4 p.m. B. 5 p.m. C. 6 p.m. D. None of these

Answer: Option C

2. Which is the third number to the left of the number which is exactly in the middle of the following sequence of numbers ?

1 2 3 4 5 6 7 8 9 2 4 6 8 9 7 5 3 1 9 8 7 6 5 4 3 2 1

Options:

A. 3 B. 4 C. 5 D. 6 E. 7

Answer: Option B

3. How many 3's are there in the following sequence which are neither preceded by 6 nor immediately followed by 9 ?

9 3 6 6 3 9 5 9 3 7 8 9 1 6 3 9 6 3 9

Options:

A. One B. Two C. Three D. Four E. None of these

Answer: Option B

4. Count each 7 which is not immediately preceded by 5 but is immediately followed by either 2 or 3.

How many such 7's are there ?

5 7 2 6 5 7 3 8 3 7 3 2 5 7 2 7 3 4 8 2 6 7 8

Options:

A. 2 B. 3 C. 4 D. 5

Answer: Option A

5. How many 6's are there in the following series of numbers which are preceded by 7 but not immediately followed by 9 ?

6 7 9 5 6 9 7 6 8 7 6 7 8 6 9 4 6 7 7 6 9 5 7 6 3

Options:

A. One B. Two C. Three D. Four

Answer: Option C

6. How many 7's are there in the following series which are not immediately followed by 3 but immediately preceded by 8 ?

8 9 8 7 6 2 2 6 3 2 6 9 7 3 2 8 7 2 7 7 8 7 3 7 7 9 4

Options:

A. 10 B. 3 C. 2 D. 0 E. None of these

Answer: Option C

7. Count each 1 in the following sequence of numbers that is immediately followed by 2, if 2 is not immediately followed by 3. How many such 1's are there ?

1 2 1 3 4 5 1 2 3 5 2 1 2 6 1 4 5 1 1 2 4 1 2 3 2 1 7 5 2 1 2 5

Options:

A. 2 B. 4 C. 5 D. 7 E. 9

Answer: Option B

8. How many 7's are there in the following series which are preceded by 6 which is not preceded by 8 ?

8 7 6 7 8 6 7 5 6 7 9 7 6 1 6 7 7 6 8 8 6 9 7 6 8 7

Options:

A. Nil B. One C. Two D. Three E. None of these

Answer: Option D

9. In the following list of numerals, how many 2's are followed by 1's but not preceded by 4 ?

4 2 1 2 1 4 2 1 1 2 4 4 4 1 2 2 1 2 1 4 4 2 1 4 2 1 2 1 2 4 1 4 2 1 2 4 1 4 6

Options:

A. Two B. Three C. Four D. Five

Answer: Option C

10. How many 7's are there in the following sequence which are precedede by 9 and followed by 6 ?

7 8 9 7 6 5 3 4 2 8 9 7 2 4 5 9 2 9 7 6 4 7

Options:

A. 2 B. 3 C. 4 D. 5 E. None of these

Answer: Option A

11. In the series : 7 8 9 7 6 5 3 4 2 8 9 7 2 4 5 9 2 9 7 6 4 7
Which figures have equal frequency ?

Options:

A. 253 B. 245 C. 375 D. 865 E. None of these

Answer: Option D

12. How many 6's are there in the following number sequence which are immediately preceded by 9 but not immediately followed by 4 ?
5 6 4 3 2 9 6 3 1 6 4 9 6 4 2 1 5 9 6 7 2 1 4 7 4 9 6 4 2

Options:

A. One B. Two C. Three D. Four E. More than four

Answer: Option B

13. In the following series of numbers, find out how many times, 1, 3 and 7 have appeared together, 7 being in the middle and 1 and 3 on either side of 7 ?
2 9 7 3 1 7 3 7 7 1 3 3 1 7 3 8 5 7 1 3 7 7 1 7 3 9 0 6

Options:

A. 3 B. 4 C. 5 D. More than 5 E. None of these

Answer: Option A

14. In the series,
6 4 1 2 2 8 7 4 2 1 5 3 8 6 2 1 7 1 4 1 3 2 8 6
How many pairs of alternate numbers have a difference of 2 ?

Options:

A. One B. Two C. Three D. Four

Answer: Option B

15. How many even numbers are there in the following sequence of numbers which are immediately followed by an odd number as well as immediately preceded by an even number ?
8 6 7 6 8 9 3 2 7 5 3 4 2 2 3 5 5 2 2 8 1 1 9

Options:

A. One B. Three C. Five D. Six E. None of these

Answer: Option E

10.3 MATHEMATICAL OPERATIONS

Learning Objectives

A student will be able to

- Know BODMAS rule
- Deal with simple mathematical operations
- Substitute the original symbol in place of artificial symbol
- Analyze the given statements and identify the correct statement
- Substitute the real symbols in place of unusual symbols and hence analyze a set of statements

Note:

S.No	Symbol	Meaning
1	-	subtraction
2	+	Addition
3	X	multiplication
4	÷	division
5	>	Greater than
6	<	Less than
7	=	Is equal to

BODMAS While solving a mathematical expression, we follow the following rule:
Bracket ⟶ Of ⟶ Division
⟶ Multiplication ⟶ Addition ⟶ Subtraction

Example: (36 – 12) ÷6+8÷2 x 4 (solving bracket)
= 24÷6+8÷2x4 (solving division)
= 4+4x4 (solving multiplication)
= 4+16 (solving addition)
= 20

Try yourself
If + stands for x , - for ÷, x for – and ÷ for + Find the value of 26+72-4x5÷2
Ans : 46

This section deals with questions on simple mathematical operations. Here, the four fundamental operations – addition, subtraction, multiplication and division and also statements such as 'less than', 'greater than', 'equal to', 'not equal to', etc. are represented by symbols, different from the usual ones. The questions involving these operations are set using artificial symbols. The candidate has to substitute the real signs and solve the questions accordingly, to get the answer.

If A+E=B+C, A+B=C+D, B+C>D+E, A+D>B+E, A+E>C+E, then
(a) A>C>B>E>D
(b) A>B>C>D>E
(c) D>C>A>E>B
(d) C>B>E>D

Exercise

1. Find out the two signs to be interchanged for making following equation correct :

   5 + 3 x 8 - 12 ÷ 4 = 3

Options:

A. + and - B. - and ÷ C. + and x D. + and ÷

Answer: Option B

2. Give interchanges :

   Signs - and x and numbers 3 and 6.

   Options:

   A. 6 - 3 x 2 = 9 B. 3 - 6 x 8 = 10 C. 6 x 3 - 4 = 15 D. 3 x 6 - 4 = 33

   Answer: Option B

3. *If × stands for 'addition', ÷ stands for 'subtraction', + stands for 'multiplication' and - stands for 'division', then 20 × 8 ÷ 8 - 4 + 2 = ?*

   Options:

   A. 80 B. 25 C. 24 D. 5

   Answer: Option C

4. *If - means ×, × means +, + means ÷ and ÷ means -, then 40 × 12 + 3 - 6 ÷ 60 = ?*

   Options:

   A. 7.95 B. 16 C. 44 D. 479.95 E. None of these

   Answer: Option E

5. *If + means ÷, × means -, ÷ means × and - means+, than 8 + 6 × 4 ÷ 3 - 4 = ?*

   Options:

   A. -12 B. - 20/3 C. 12 D. 20/3 E. None of these

   Answer: Option B

6. *If × means ÷, - means ×, ÷ means + and + means-, than (3 - 15 ÷ 19) × 8 + 6 = ?*

   Options:

   A. 8 B. 4 C. 2 D. -1

   Answer: Option C

7. *If + means ×, ÷ means -, × means ÷ and - means +, what will be the value of 4 + 11 ÷ 5 - 55 = ?*

   Options:

   A. - 48.5 B. - 11 C. 79 D. 91 E. None of these

   Answer: Option E

8. Given interchanges :

   Signs + and - and numbers 4 and 8.

   Options:

   A. 4 ÷ 8 - 12 = 16 B. 4 - 8 + 12 = 0 C. 8 ÷ 4 - 12 = 24 D. 8 - 4 ÷ 12 = 8

   Answer: Option B

9. Given intercharges :

   Signs + and x and numbers 4 and 5.

   Options:

   A. 5 x 4 + 20 = 40 B. 5 x 4 + 20 = 85 C. 5 x 4 + 20 = 104 D. 5 x 4 + 20 = 95

   Answer: Option C

10. Given intercharges : Signs - and ÷ and numbers 4 and 8.

    Options:

    A. 6 - 8 ÷ 4 = - 1 B. 8 - 6 ÷ 4 = 1 C. 4 ÷ 8 - 2 = 6 D. 4 - 8 ÷ 6 = 2

    Answer: Option C

Day	Topic	Page
	i) Verbal Reasoning	
	Unit-11	
Day 61	11.1 Clocks	141-143
Day 62	11.2 Calendars	144-147

11.1 CLOCKS

Learning Objectives

The student will be able to

- Understand the angle made by any two lines
- Find the relation between the hours hand and the minutes hand
- Calculate the time interval between the two hands spaced at some angle.

SOLVED PROBLEMS

1. Find the angle between the hour hand and minute hand of a clock -When the time is 4.20 hours.

   Solution:

   Angle traced by hours hand in 4.20 hours, i.e., 13/3 hrs=(360/12x13/3)=130^0
   Angle traced by minute hand in 20 minutes =(360/60x20)=120^0
   Therefore required angle = $130^0 - 120^0 = 10^0$.

2. How many times in a day the hands of a clock are straight?

   a) 22 b) 24 c) 44 d) 48

Ans :c

3. Find the angle between the hour hand and minute hand of a clock -When the time is 4.20 hours.

   Solution:
   Angle traced by hours hand in 4.20 hours, i.e., 13/3 hrs=(360/12x13/3)=130^0
   Angle traced by minute hand in 20 minutes =(360/60x20)=120^0Therefore required angle
   $= 130^0 - 120^0 = 10^0$.

4. How many times in a day the hands of a clock are straight?

   a) 22 b) 24 c) 44 d) 48

Ans :c

5. At 3.40, the hour hand and the minute hand of a clock form an angle of: -
A) 120^0 B) 130^0 C) 125^0 D) 135^0

Answer: *130^0*

Explanation: Angle traced by hour hand in 12 hrs = 360°
Angle traced by it in 11/3 hrs =(360/12) * (11/3) = 100°.
Angle traced by minute hand in 60 mm. = 360°.
Angle traced by it in 40 mm = (360/60) * 40 = 240°.
Required angle = (240 - 110)° = 130°.

6. How many times are the hands of a . clock at right angles in a day ?
A) 22 B) 44 C) 24 D) 48

Answer: *44*

Explanation: In 12 hours, they are at right angles 22 times. In 24 hours, they are at right angles 44 times

7. The angle between the minut hand and the hour hand of a clock when the time is 4.20 is
A) 0 B) 20 C) 5 D) 10

Answer: *10*

Explanation: Angle traced by hour hand in 13/3 hrs = (360/12) * (13/3) = 130°.
Angle traced by min. hand in 20 min. = (360/60) * 20 = 120°.
Required angle = (130 - 120)° = 10°.

8. How many times do the hands of a clock coincide in a day ?
A) 24 B) 21 C) 20 D) 22

Answer: *22*

Explanation: The hands of a clock coincide 1 1 times in every 12 hours (Since between 11 and 1, they coincide only once, i.e. at 12 o'clock.
The hands coincide 22 times in a day.

9. How many times in a day, the hands of a clock are straight?
A) 22 B) 44 C) 24 D) 48

Answer: *44*

Explanation: In 12 hours, the hands coincide or are in opposite direction 22 times.
In 24 hours, the hands coincide or are in opposite direction 44 times a day.

10. A watch which gains uniformly is 2 minute slow at noon on Monday and is 4 mm. 48 sec fast at2 p.m. on the following Monday. When was it correct ?
A) 2p.m on Tuesday B) 3 p.m. on Thursday
C) 2 p.m. on Tuesday D) 3 p.m. on Thursday

Answer: *2 p.m. on Wednesday*

Explanation: Help us to explain question in discussion

11. How many times do the hands of a clock point towards each other inaday?
A) 12 B)22 C) 20 D) 24

Answer: 22

Explanation: The hands of a clock point towards each other 11 times in every 12 hours (Because between 5 and 7 they point towards each other at 6 o'clock only).
So, in a day, the hands point towards each other 22 times.

12. The angle between the minute hand and the hour hand of a clock when the time is 8.30, is
A) 80^0 B) 60^0 C) 75^0 D) 105^0

Answer: 75°

Explanation: Angle traced by hour hand in 17/2 hrs = (260/12) * (17/2) = 255°.
Angle traced by mm. hand in 30 mm. = (360/60) * 30 = 180°.
Required angle = (255 — 180)° = 75°.

Exercise

1. An accurate clock shows 8 o'clock in the morning. Through how may degrees will the hour hand rotate when the clock shows 2 o'clock in the afternoon?
A) 144^0 B) 150^0 C) 168^0 D) 180^0

2. The reflex angle between the hands of a clock at 10.25 is:

A) 180^0 B) $19\frac{1}{2}^0$ C) 195^0 D) $197\frac{1}{2}^0$

3. A clock is started at noon. By 10 minutes past 5, the hour hand has turned through:
A) 145^0 B) 150^0 C) 155^0 D) 160^0

4. A watch which gains 5 seconds in 3 minutes was set right at 7 a.m. In the afternoon of the same day, when the watch indicated quarter past 4 o'clock, the true time is:

A) $58\frac{7}{12}$ min past3 B) 4 p.m.

C) $58\frac{7}{11}$ min past3 D) $2\frac{3}{11}$ min past4

5. How much does a watch lose per day, if its hands coincide every 64 minutes?

A) $32\frac{8}{11}$ min B) $36\frac{5}{11}$ min C) 90 min D) 96 min

ANSWERS

Question Nos	1	2	3	4	5
Answers	D	D	C	B	A

11.2 CALENDARS

Learning Objectives

After reading this unit a student will learn to Find the day of the week on a given date

- To understand odd days, leap year,
- Count odd days, identify the day of the week related to odd days

Example: What was the day of the week on 15th August 1947?

15th August 1947 = (1946 years+ period from 1-1-1947 to 15-8-1947)
Odd days in 1600 years = 0
Odd days in 300 years = 5x3=15=1
46 years = 11 leap years +35 ordinary years)
= (11x2+35x1) odd days= 57 odd days
= 8 weeks+1 day=1 odd day
Therefore odd days in 1946 years =(0+1+1=2)
Number of days from 1-1-1947 to 15-8-1947 = 227 days
227 days = 32 weeks+3 days = 3 odd days
Total No. of odd days = 2+3= 5
The required day is Friday

Solved Problems

1. How many days are there from 2nd January 1995 to 15th March, 1995?

Answer: *73*

Explanation: Jan Feb March 30 +28 + 15 = 73 days.

2. January 1, 1995 was a Sunday. What day of the week lies on January 1, 1996?

Answer: *Monday*

Explanation:

1995 being on ordinary year, it has 1 odd day. So, the first day of 1996 will be one day beyond Sunday, i.e. it will be Monday.

3. The day on 5th March of a year is the same day on what date of thesame year?

Answer: *5th Nov.*

Explanation: Since any date in March is the same day of the week as the corresponding date in November of that year, so the same day falls on 5th November.

4. Today is Tuesday. After 62 days it will be:

Answer: *Monday*

Explanation: Each day of the week is repeated after 7 days. After 63 days, it will be Tuesday. After 62 days, it will be Monday.

5. January 1, 1992 was Wednesday. What day of the week was on January 1,1993?

Answer: *Friday*

Explanation: 1992 being a leap year, it has 2 odd days. So, the first day of the year 1993 must be two days beyond Wednesday.
So, it was Friday.

6. If the first day of the year 1991 was Tuesday, what day of the week must have been on 1st January, 1998?

Answer: *Thursday*

Explanation: Total number of odd days from 1st Jan, 1991 to 1st Jan, 1998
Year 1991 1992 1993 1994 1995 1996 1997
Odd days I + 2 + 1 + 1 + 1 + 2 + 1 = 9 odd days
2 odd days
The day is 2 days beyond the day on 1st Jan, 1991.
i.e. The required day must be Thursday.

7. The calendar for 1990 is the same as for

Answer: *1996*

Explanation: count the number of days for 1990 onwards to get 0 odd day.
Year 1990 1991 1992 1993 1994 1995
Odd days 1 1 2 1 1 1 = 7 or 0 odd day.
Calendar for 1990 is the same as for the year 1996.

8. Today is 1st April. The day of the week is Wednesday. This is a leap year. The day of the week on this day after 3 years will be:

Answer: *Saturday*

Explanation: This being a leap year, none of the next 3 years is a leap year.
So,the day of the week will be 3 days beyond Wednesday.
The day after 3 years will be Saturday.

9. What will be the day of the week on 1st Jan 2001 ?

Answer: *Sunday*

Explanation: 1600 yeaas contain 0 odd day.
300 years contain 1 odd day.
100 years contain 5 odd days.
2000 years contain (0+ 1 +5) odd days =6 odd days.
1st Jan, 2001 has one odd day.
Total number of odd days upto 1st Jan, 2001 = 7 odd days =Q odd days.
The day will be Sunday.

10. The first republic day of India was celebrated on 26th January, 1950. It was

Answer: *Thursday*

Explanation: Help us to explain question in discussion

11. The year next to 1996 having the same calender as that of 1996 is:

Answer: *2001*

Explanation: Starting with 1996, we go on counting the number of odd days till sum is divisible by 7.
Year 1996 1997 1998 1999 2000
Odd days 2 1 1 1 2 =7 odd days

0 odd day.
Calendar for 2001 will be the same as that of 1995.

12. May 6, 1993 was Thursday. What day of the week was on May 6, 1992?

- Saturday
- Wednesday
- Tuesday
- Friday

Answer: *Tuesday*

Explanation: 1992 being a leap year, it has 2 odd days.
So, the day on May, 1993 is 2 days beyond the day on May 6, 1992.
But, on May 6, 1993 it was Thursday.
So, on May 6, 1992 it was Tuesday.

13. On what dates of April, 1994 did Sunday fall?

Answer: *3, 10, 17, 24*

Explanation: Find the day on 1st April, 1994.
1600 years contain 0 odd day
300 years contain 1 odd day
93 years = (23 leap years + 70 ordinary years)
= (46 + 70) odd days =4 odd days.
Number of days upto 1St April, 1994
Jan Feb March April
31 + 28 ÷ 31 + 1 =9ldays=Ooddday. Total
number of odd days = (0÷ 1 +4+0) =5 Odd day.
.. Day on 1st April 1994 is 'Friday'.
Sunday was on 3rd April, 1994. Thus, Sunday fell on 3rd, 10th, 17th & 24th.

14. Monday falls on 20th March, 1995. What was the day on 3rd November, 1994?

Answer: *Thursday*

Explanation: Counting the number of days after 3rd November, 1994 we have: Nov. Dec. Jan. Feb. March
27+ 31 + 31+ 28 + 20 = 137days =19weeks + 4days . Number of odd days = 4.
The day on 3rd November, 1994 is (7 - 4) days beyond the day on 20th March, 1995.
So, the required day is Thursday.

15. On 8th Feb, 1995 it was Wednesday. The day of the week on 8th Feb, 1994 was

Answer: *Tuesday*

Explanation: 1994 being an ordinary year, it has 1 odd day.
So, the day on 8th Feb, 1995 is one day beyond the day on 8th Feb, 1994.
But, 8th Feb, 1995 was Wednesday. 8th Feb, 1994 was Tuesday.

Exercise

1.It was Sunday on Jan 1, 2006. What was the day of the week Jan 1, 2010?

A. Sunday
B. Saturday
C. Friday
D. Wednesday

2.What was the day of the week on 28th May, 2006?

A. Thursday
B. Friday
C. Saturday
D. Sunday

3. What was the day of the week on 17th June, 1998?

A. Monday
B. Tuesday
C. Wednesday
D. Thursday

4.What will be the day of the week 15th August, 2010?

A. Sunday
B. Monday
C. Tuesday
D. Friday

5. Today is Monday. After 61 days, it will be:

A. Wednesday
B. Saturday
C. Tuesday
D. Thursday

ANSWERS

Question Nos	1	2	3	4	5
Answers	C	D	C	A	B

ii) Non Verbal Reasoning		
Unit 12		
Day 63	12.1 Series-1	149 - 188
Day 64	12.1 Series-2	
Day 65	12.2 Mirror Images and Water Images	
Day 66	12.3 Incomplete Figure Patterns	
Day 67	12.4 Figure matrix	
Day 68	12.5 Logical VennDiagrams-1	189 - 200
Day 69	12.5 Logical VennDiagrams-2	
Day 70	Test-5	

12.1 SERIES

INTRODUCTION

A comparison between one thing and another, typically for the purpose of explanation or clarification.

There is three types of Analogy
(a) Number Analogy
(b) Letter Analogy
(c) Word Analogy

In questions based on analogy, a pair of numbers/letters/words is given that have certain relationship between them. This pair is followed by third numbers/letters/words. The candidate is required to identify the relationship between the pair of numbers/letters/words given and find out the FOURTH numbers/ letters/ wore such that the relationship between the third and the fourth numbers/letters/words is similar to the relationship that exists between the first and the

Series, Analogy and Classification and problem solving with pictures

Learning Objectives

After reading this unit a student will learn to Find the day of the week on a given date

- Identify the pattern in a series which are in figurative form
- Define the sequence in a set of problem figures and give the next following answer figure

The analogy tests are classified as

a. Rotative relationship
b. Quantitative relationship
c. Positional analogies
d. Structural analogies

Exercise

In each of the following questions, various terms of an alphabet series are given with one or more terms missing as shown by (?). Choose the missing terms out of the given alternatives.

1) AZ, GT, MN, ?, YB
A) KF B) RX C) SH D) TS

2) AZ, CX, FU, ?
A) IR B) IV C) JQ D) KP
Answer : C.

3) AZ, BY, CX, ?

A) EF B) GH C) IJ D) DW

4) DKY, FJW, HIU, JHS, ?

A) KGR B) LFQ C) KFR D) LGQ

Answer : D.

The first letters are alternate. The second letter of moves one step backward to obtain the second letter of the successive term. The third letter moves two steps backward to obtain the third letter of the subsequent term.

5) CMW, HRB, ?, RBL, WGQ, BLV

A) MWG B) LVF C) LWG D) WMX

Answer : A.

6) QPO, SRQ, UTS, WVU, ?

A) XVZ B) ZYA C) YXZ D)

Answer : C.

Each term consists of three consecutive letters in reverse order. The first letter and the last letter of the next term are the same.

7) JE, LH, OL, SQ, ?

A) WV B) WX C) VW D) XW

Answer : D.

The first letter moves 2, 3, 4 ... steps forward. The second letter moves 3, 4, 5 ... steps forward.

8) AD, EH, IL, ?, QT

A) LM B) MN C) MP D) OM

In each of the following questions, various terms of an alphabet series are given with one or more terms missing as shown by (?). Choose the missing terms out of the given alternatives.

9) BMO, EOQ, HQS, ?

A) KSU B) LMN C) SOV D) SOW

Answer : A.

The first letter moves 3 steps forward. The second and third letters move 2 steps forward.

10) AC, FH, KM, PR, ?

A) UW B) VW C) UX D) TV

Answer : A.

11) T, R, P, N, L, ?, ?

A) J, G B) J, H C) K, H D) K, I

Answer : B.

The letters move 2 steps backward.

12) R, U, X, A, D, ?

A) F B) G C) H D)

Answer : B.

13) B, E, D, F, ?, H, J, ?, L

A) I, M B) M, I C) I, N D) J, M

Answer : A.

Divide the series into groups of three letters each. In each

14) M, N, O, L, R, I, V, ?

A) A B) H C) E D) F

Answer : B.

15) Y, B, T, G, O, ?

A) N B) M C) L D) K

Answer : C.

The sequence consists of two series (Y, T, O) and (B, G, ?). The first series consists of 2nd, 7th and 12th letters from the end of English alphabet. The second series consists of 2nd, 7th and 12th letters from the beginning of English alphabet.

16) BD, GI, LN, QS, ?

A) TV B) UW C) WX D) VX

Answer : D.

Each term consists of two alternate letters. There is a gap of two letters between the last letter of each term and the first letter of the next term.

17) CE, GI, KM, OQ, ?

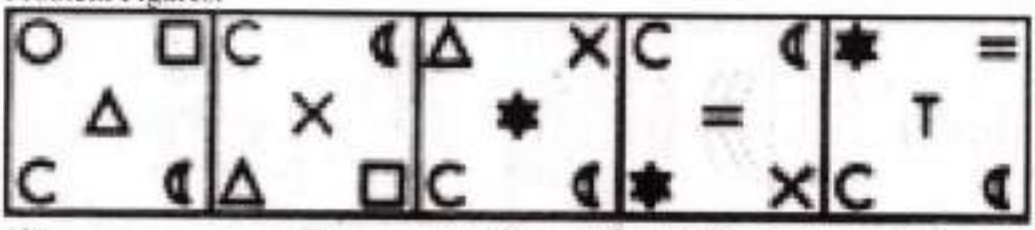
A) TW B) TV C) SU D) RT

Solved Problems

In each step, all the symbols move in the sequence

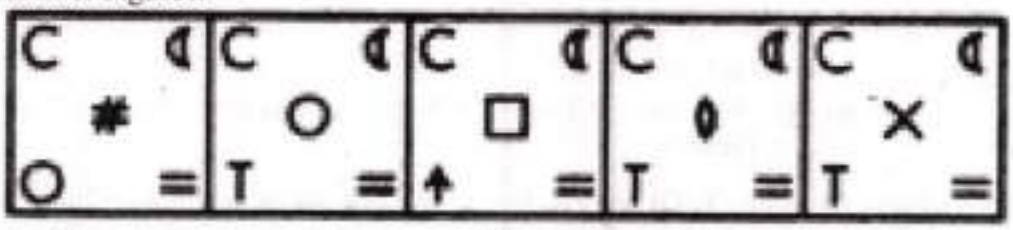
1. Select a figure from amongst the Answer Figures which will continue the same series as established by the five Problem Figures.

Problem Figures:



(A) (B) (C) (D) (E)

Answer Figures:

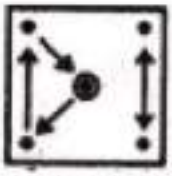
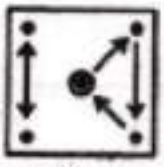


(1) (2) (3) (4) (5)

A) 1 B) 2 C) 3 D) 2

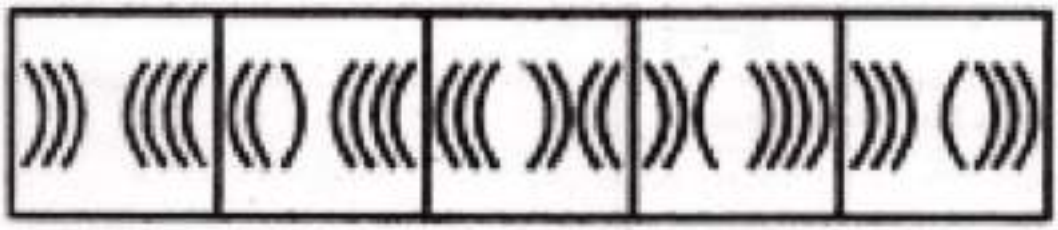
Answer: Option D

Explanation:

The symbols move in the sequences  and  alternately. In each step, the symbol that reaches the-encircled position gets replaced by a new symbol.

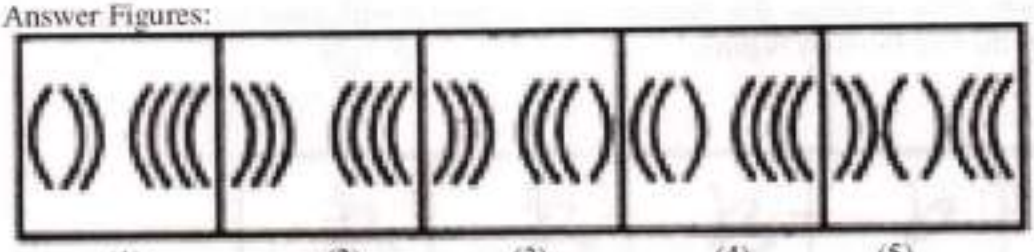
2. Select a figure from amongst the Answer Figures which will continue the same series as established by the five Problem Figures.

Problem Figures:



(A) (B) (C) (D) (E)

Answer Figures:



(1) (2) (3) (4) (5)

A) 1 B) 2 C) 3 D) 4

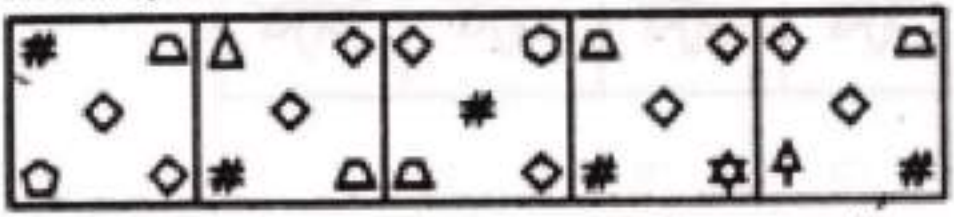
Answer: Option B

Explanation:

Two, three, four, two, three,..... curves get inverted sequentially.

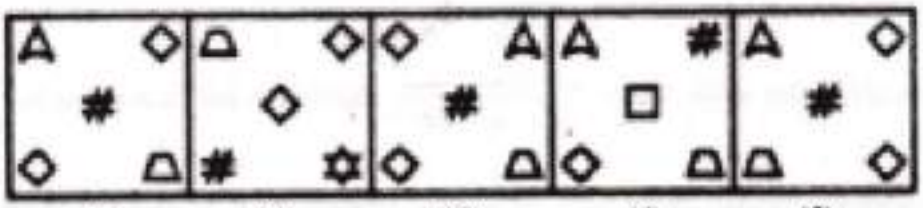
3. Select a figure from amongst the Answer Figures which will continue the same series as established by the five Problem Figures.

Problem Figures:



(A) (B) (C) (D) (E)

Answer Figures:



(1) (2) (3) (4) (5)

A) 1 B) 2 C) 3 D) 4

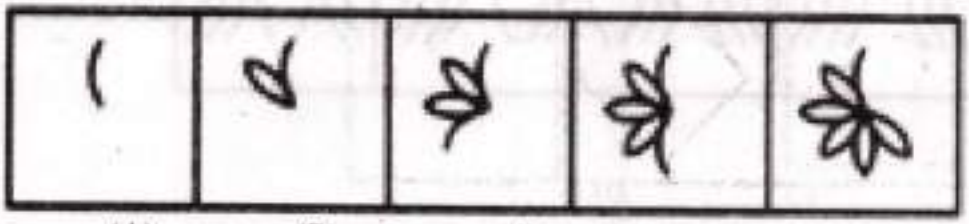
Answer: Option A

Explanation:

The symbols move in the sequence in the first step. In each subsequent step, the symbols move in the sequence obtained by rotating the previous sequence through 90°CW. Also, in each step, the symbol that reaches the encircled position gets replaced by a new one.

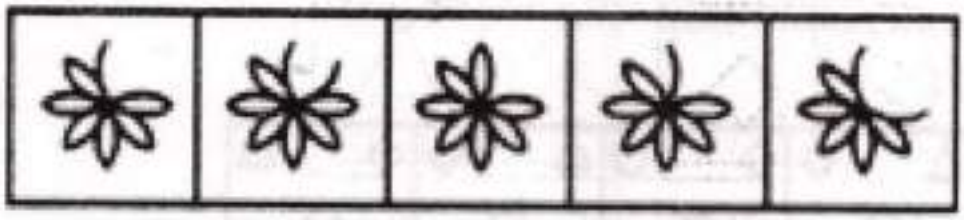
4. Select a figure from amongst the Answer Figures which will continue the same series as established by the five Problem Figures.

Problem Figures:



(A) (B) (C) (D) (E)

Answer Figures:



(1) (2) (3) (4) (5)

A) 1 B) 2 C) 3 D) 4 E) 5

Answer: Option A

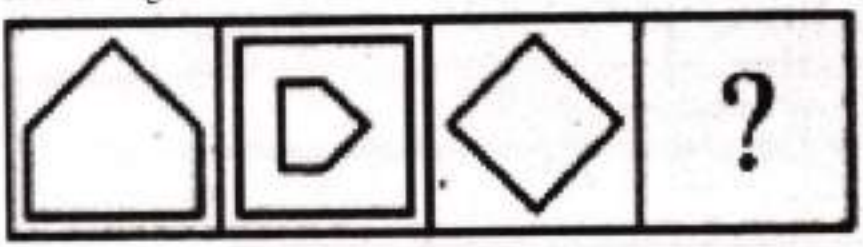
Explanation:

Two and three half-leaves are added to the figure alternately. The addition of half-leaves takes place in an ACW direction.

Each of the following questions consists of two sets of figures. Figures A, B, C and D constitute the Problem Set while figures 1, 2, 3, 4 and 5 constitute the Answer Set. There is a definite relationship between figures A and B. Establish a similar relationship between figures C and D by selecting a suitable figure from the Answer Set that would replace the question mark (?) in fig. (D).

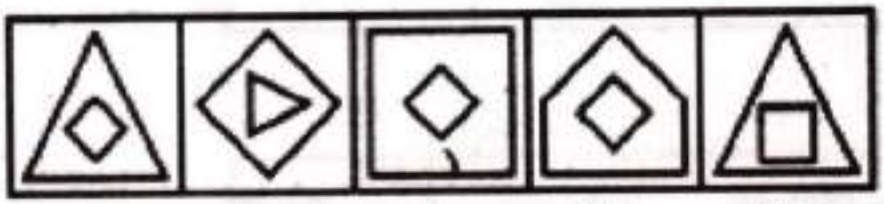
5. Select a suitable figure from the Answer Figures that would replace the question mark (?).

Problem Figures:



(A) (B) (C) (D)

Answer Figures:



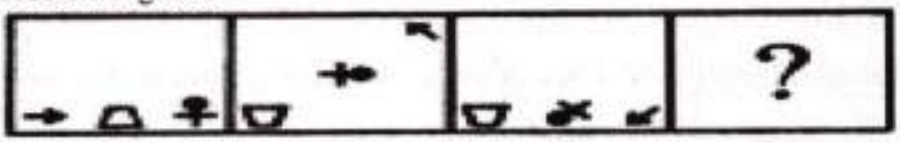
(1) (2) (3) (4) (5)

A) 1 B) 2 C) 3 D) 4 E) 5

Answer: Option A
Explanation:
The figure rotates 90°CW; gets reduced in size and also gets enclosed in a figure with one less number of sides.

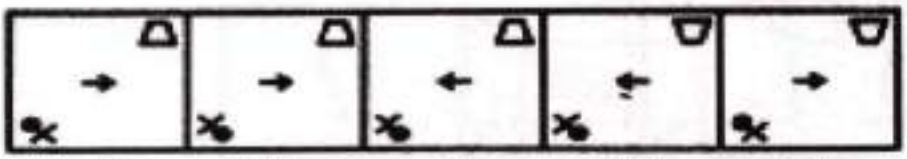
6. Select a suitable figure from the Answer Figures that would replace the question mark (?).

Problem Figures:



(A) (B) (C) (D)

Answer Figures:



(1) (2) (3) (4) (5)

A) 1 B) 2 C) 3 D) 4 E) 5

Answer: Option A
Explanation:

The symbols move in the sequence . Also, the arrow rotates 135°ACW; the trapezium gets vertically inverted and the pin-shaped symbol rotates 90°CW.

7. Select a suitable figure from the Answer Figures that would replace the question mark (?).

Problem Figures:

(A) (B) (C) (D)

Answer Figures

(1) (2) (3) (4) (5)

A) 1 B) 2 C) 3 D) 4 E) 5

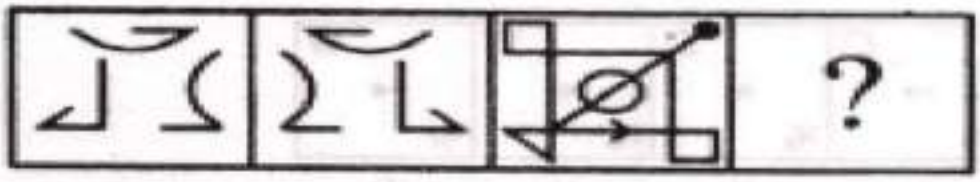
Answer: Option B

Explanation:

The upper element rotates through 180° and its head gets inverted. The lower element gets vertically inverted.

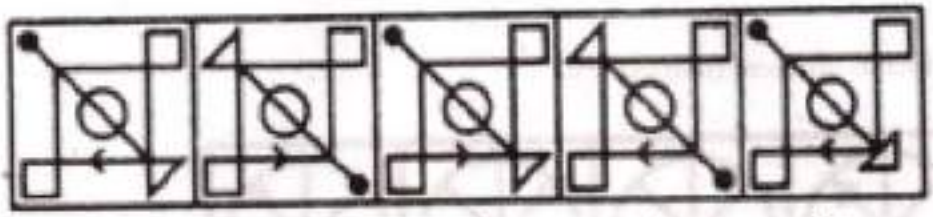
8. Select a suitable figure from the Answer Figures that would replace the question mark (?).

Problem Figures:



(A) (B) (C) (D)

Answer Figures:



(1) (2) (3) (4) (5)

A) 1 B) 2 C) 3 D) 4 E) 5

Answer: Option A

Explanation:

The figure gets laterally inverted.

9. Select a suitable figure from the Answer Figures that would replace the question mark (?).

Problem Figures:

(A) (B) (C) (D)

Answer Figures:

(1) (2) (3) (4) (5)

A) 1 B) 2 C) 3 D) 4 E) 5

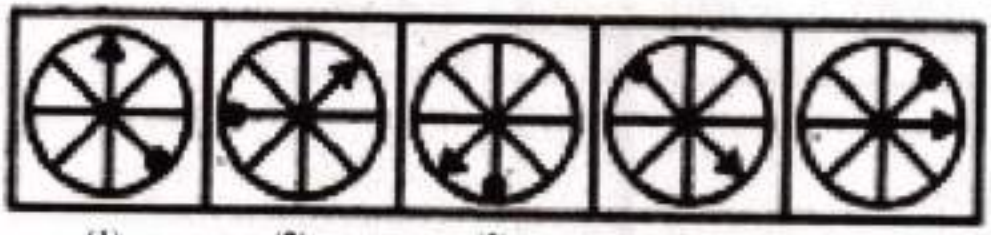
Answer: Option C

Explanation:

The figure rotates through 90°ACW.

In each problem, out of the five figures marked (1), (2), (3), (4) and (5), four are similar in a certain manner. However, one figure is not like the other four. Choose the figure which is different from the rest.

10. Choose the figure which is different from the rest.



(1) (2) (3) (4) (5)

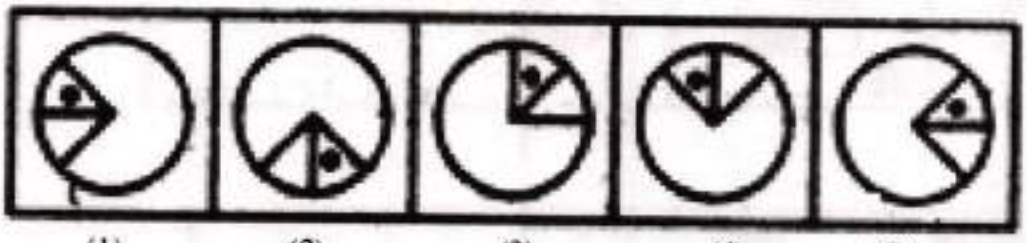
A) 1 B) 2 C) 3 D) 4 E) 5

Answer: Option D

Explanation:

Only in fig. (4), the black triangle and the black circle lie at the two ends of the same diameter.

11. Choose the figure which is different from the rest.



(1) (2) (3) (4) (5)

A) 1 B) 2 C) 3 D) 4 E) 5

Answer: Option A

Explanation:

All other figures can be rotated into each other.

12. Choose the figure which is different from the rest.

(1) (2) (3) (4) (5)

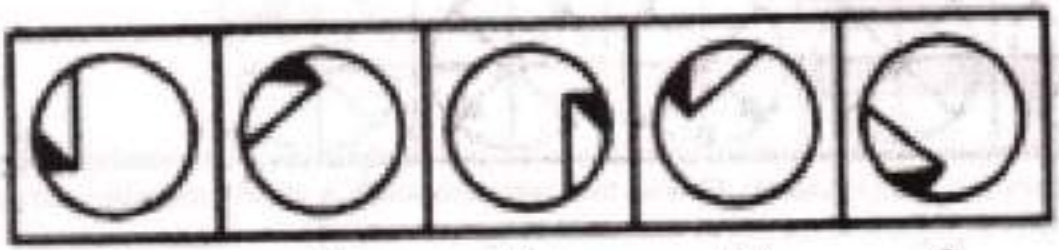
A) 1 B) 2 C) 3 D) 4 E) 5

Answer: Option C

Explanation:

In each one of the figurers except fig. (3), the number of half-leaves is one more than the number of line segments.

13. Choose the figure which is different from the rest.



(1) (2) (3) (4) (5)

A) 1 B) 2 C) 3 D) 4 E) 5

Answer: Option B

Explanation:

All other figures can be rotated into each other.

14. Choose the figure which is different from the rest.

(1) (2) (3) (4) (5)

A) 1 B) 2 C) 3 D) 4 E) 5

Answer: Option B

Explanation:

Each one of the remaining figures is composed of straight lines only.

12.2 MIRROR IMAGES AND WATER IMAGES

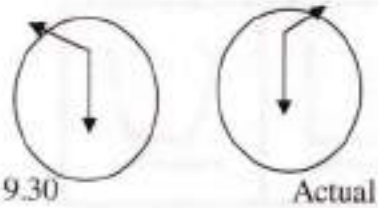
MIRROR IMAGES

Introduction

In each of the following questions you are given a combination of alphabets and/or numbers followed by four alternatives (1), (2), (3) and (4). Choose the alternative which is closely resembles the mirror image of the given combination

Learning Objectives

- The student will be able to find out the image of an object as seen in a mirror of an alphabet/figure
- Decipher the actual time from the mirror image of a clock



Mirror image 9.30 Actual time 2.30

WATER IMAGES

Introduction

In each of the following questions, you are given a combination of alphabets and/or numbers followed by four alternatives (1), (2), (3) and (4). Choose the alternative which is closely resembles the water-image of the given combination.

Learning Objectives

- The student will be able to find out the reflection of an object as seen in the water.

SOLVED PROBLEMS - MIRROR IMAGES

In each of the following questions you are given a combination of alphabets and/or numbers followed by four alternatives (1), (2), (3) and (4). Choose the alternative which is closely resembles the mirror image of the given combination.

1. Choose the alternative which is closely resembles the mirror image of the given combination.

ANS43Q12

(1) AN3Q4S12 (2) AN3Q4S12

(3) AN3Q4S12 (4) AN3Q4S12

A) 1 B) 2 C) 3 D) 4

Answer: Option B

2. Choose the alternative which is closely resembles the mirror image of the given combination.

TARAIN1014A

(1) TARAIN1014A (2) TARAIN1014A

(3) TARAIN1014A (4) TARAIN1014A

A) 1 B) 2 C) 3 D) 4

Answer: Option D

3. Choose the alternative which is closely resembles the mirror image of the given combination.

1965 INDOPAK

(1) 1965INDOPAK (2) 1965INDOPAK

(3) 1965INDOPAK (4) 1965INDOPAK

A) 1 B) 2 C) 3 D) 4

Answer: Option D

4. Choose the alternative which is closely resembles the mirror image of the given combination.

MALAYALAM

(1) MALAYALAM (2) MALAYALAM

(3) MALAYALAM (4) MALAYALAM

A) 1 B) 2 C) 3 D) 4

Answer: Option B

5. Choose the alternative which is closely resembles the mirror image of the given combination.

EFFECTIVE

(1) EFFECTIVE (2) EVITCEFFE

(3) EFFECTIVE (4) EVITCEFFE

A) 1 B) 2 C) 3 D) 4

Answer: Option A

In each of the following questions you are given a combination of alphabets and/or numbers followed by four alternatives (1), (2), (3) and (4). Choose the alternative which is closely resembles the mirror image of the given combination.

6. Choose the alternative which is closely resembles the mirror image of the given combination.

UTZFY6KH

(1) UTZFY6KH (2) UTZFY6KH

(3) UTZFY6KH (4) UTZFY6KH

A) 1 B) 2 C) 3 D) 4

Answer: Option D

7. Choose the alternative which is closely resembles the mirror image of the given combination.

AN54WMG3

(1) ƐGWM4SNA (2) ƐGMW4SNA

(3) ƐGWM4SNA (4) ƐGWM4SNA

A) 1 B) 2 C) 3 D) 4

Answer: Option B

8. Choose the alternative which is closely resembles the mirror image of the given combination.

SUPERVISOR

(1) ЯOSIVRƎPUS (2) SUPƎRVISOR

(3) ЯSOUPSƎRIV (4) SUPƎRVIOSR

A) 1 B) 2 C) 3 D) 4

Answer: Option A

9. Choose the alternative which is closely resembles the mirror image of the given combination.

MAGAZINE

(1) MAGAZINƎ (2) ƎNIZAGAM

(3) MAGAZINƎ (4) ƎNIZAGAM

A) 1 B) 2 C) 3 D) 4

Answer: Option D

10. Choose the alternative which is closely resembles the mirror image of the given combination.

DL9CG4728

(1) DJ9CG4728 (2) 8274GC9LD

(3) DL9CG4728 (4) 8274GC9LD

A) 1 B) 2 C) 3 D) 4

Answer: Option C

Exercise

In each of the following questions, choose the correct mirror images of the given image of the Fig.(X) from amongst the four alternatives (1), (2), (3) and (4) given along with it.

1. Choose the correct mirror image of the given figure (X) from amongst the four alternatives.

(X) (1) (2) (3) (4)

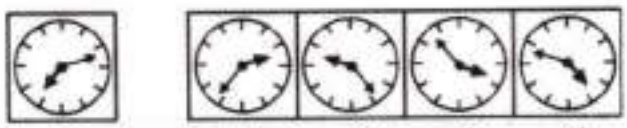
A) 1 B) 2 C) 3 D) 4

2. Choose the correct mirror image of the given figure (X) from amongst the four alternatives.

(X) (1) (2) (3) (4)

A) 1 B) 2 C) 3 D) 4

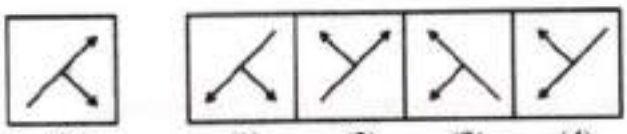
3. Choose the correct mirror image of the given figure (X) from amongst the four alternatives.



(X) (1) (2) (3) (4)

A) 1 B) 2 C) 3 D) 4

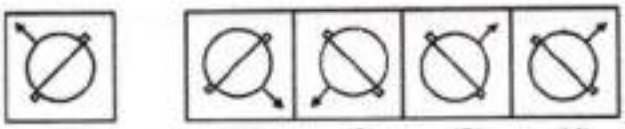
4. Choose the correct mirror image of the given figure (X) from amongst the four alternatives.



(X) (1) (2) (3) (4)

A) 1 B) 2 C) 3 D) 4

5. Choose the correct mirror image of the given figure (X) from amongst the four alternatives.



(X) (1) (2) (3) (4)

A) 1 B) 2 C) 3 D) 4

ANSWERS

Question nos	1	2	3	4	5
Answers	D	D	D	C	C

SOLVED PROBLEMS
WATER IMAGES

In each of the following questions, you are given a combination of alphabets and/or numbers followed by four alternatives (1), (2), (3) and (4). Choose the alternative which is closely resembles the water-image of the given combination.

1. Choose the alternative which is closely resembles the water-image of the given combination.

   NUCL EAR

   (1) ꓤAƎꓞCUИ (2) ИUƆꓞƎAꓤ

   (3) ИUƆꓞƎAꓤ (4) ИUƆꓞ ƎAꓤ

   A) 1 B) 2 C) 3 D) 4

Answer: Option D

2. Choose the alternative which is closely resembles the water-image of the given combination.

   bridge

   (1) p1|qge (2) pl|qge

   (3) p1|qge (4) pl|pge

   A) 1 B) 2 C) 3 D) 4

Answer: Option B

3. Choose the alternative which is closely resembles the water-image of the given combination.

   GR98AP76ES

   (1) GR68Ab19E2 (2) GR88Ab19E2

   (3) GR88Ab19E2 (4) GR88Ab19ES

   A) 1 B) 2 C) 3 D) 4

Answer: Option C

4. Choose the alternative which is closely resembles the water-image of the given combination.

   A1M3b

   (1) A1W3P (2) A1M3P

   (3) A1M3P (4) A1M3P

   A) 1 B) 2 C) 3 D) 4

Answer: Option C

5. Choose the alternative which is closely resembles the water-image of the given combination.

   E8i4e9C

   (1) E8i4e9C (2) E8i4e9C

   (3) E8i4e9C (4) E8i4e9C

   A) 1 B) 2 C) 3 D) 4

Answer: Option D

6. Choose the alternative which is closely resembles the water-image of the given combination.

ab45CD67

(1) ab4ƨCD67 (2) ab4ƨCD67

(3) ab4ƨCD67 (4) ab4ƨCD67

A) 1 B) 2 C) 3 D) 4

Answer: Option B

7. Choose the alternative which is closely resembles the water-image of the given combination.

ACOUSTIC

(1) ACOUSTIC (2) ACOUSTIC

(3) ACOUSTIC (4) ACOUSTIC

A) 1 B) 2 C) 3 D) 4

Answer: Option B

8. Choose the alternative which is closely resembles the water-image of the given combination.

monday

(1) yadnom (2) yadnom

(3) yadnom (4) yadnom

A) 1 B) 2 C) 3 D) 4

Answer: Option D

9. Choose the alternative which is closely resembles the water-image of the given combination.

RECRUIT

(1) RECRUIT (2) RECRUIT

(3) RECRUIT (4) RECRUIT

A) 1 B) 2 C) 3 D) 4

Answer: Option B

10. Choose the alternative which is closely resembles the water-image of the given combination.

QUARREL

(1) QUARREL (2) QUARREL

(3) QUARREL (4) QUARREL

A) 1 B) 2 C) 3 D) 4

Answer: Option A

Exercise

In each of the following questions, you are given a combination of alphabets and/or numbers followed by four alternatives (1), (2), (3) and (4). Choose the alternative which is closely resembles the water-image of the given combination.

1. Choose the alternative which is closely resembles the water-image of the given combination.

   NUCLEAR

   (1) ꓤꓭꓮꓤꓚꓠꓤ (2) ꓤꓠꓚꓤꓮꓭꓤ

   (3) ꓤꓠꓚꓤꓮꓭꓤ (4) ꓤꓠꓚꓤꓮꓭꓤ

   A) 1 B) 2 C) 3 D) 4

2. Choose the alternative which is closely resembles the water-image of the given combination.

   bridge

   (1) pꓷꓷꓷqꓷe (2) pꓷꓷꓷqꓷe

   (3) pꓷꓷꓷqꓷe (4) pꓷꓷꓷqꓷe

   A) 1 B) 2 C) 3 D) 4

3. Choose the alternative which is closely resembles the water-image of the given combination.

   GR98AP76ES

   (1) Gꓤꓤꓤ

12.3 INCOMPLETE FIGURE PATTERNS

SOLVED PROBLEMS

In each of the following questions, select a figure from amongst the four alternatives, which when placed in the blank space of figure (X) would complete the pattern.

1. Identify the figure that completes the pattern.

(X) (1) (2) (3) (4)

A) 1 B) 2 C) 3 D) 4

Answer: Option D
Explanation:

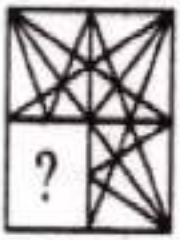
2. Identify the figure that completes the pattern.

(X) (1) (2) (3) (4)

A) 1 B) 2 C) 3 D) 4

Answer: Option C
Explanation:

3. Identify the figure that completes the pattern.



(X)

(1)

(2)

(3)

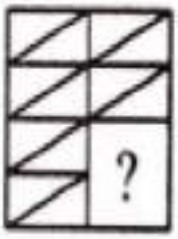
(4)

A) 1 B) 2 C) 3 D) 4

Answer: Option D

Explanation:

4. Identify the figure that completes the pattern.



(X)

(1)

(2)

(3)

(4)

A) 1 B) 2 C) 3 D) 4

Answer: Option D

Explanation:

5. Identify the figure that completes the pattern.

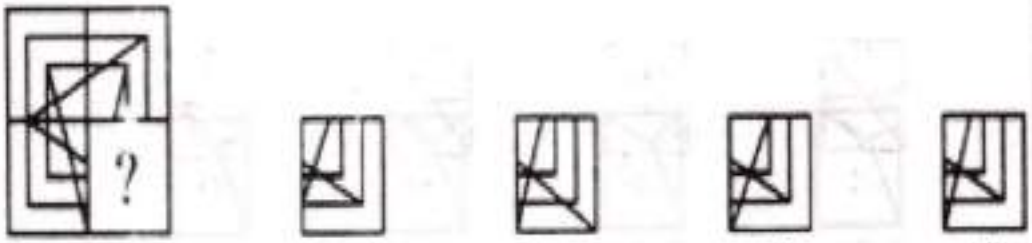
(X) (1) (2) (3) (4)

A) 1 B) 2 C) 3 D) 4

Answer: Option B

Explanation:

6. Identify the figure that completes the pattern.

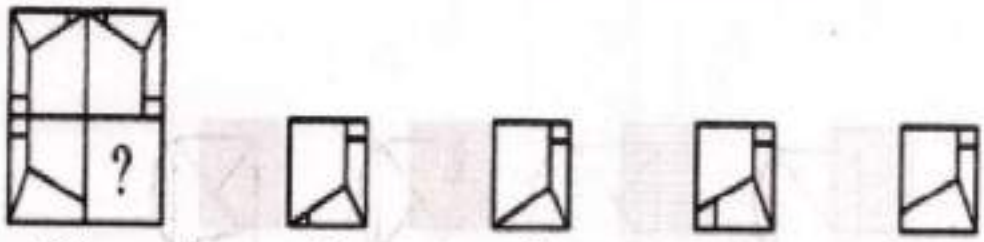


(X) (1) (2) (3) (4)

A) 1 B) 2 C) 3 D) 4

Answer: Option D
Explanation:

7. Identify the figure that completes the pattern.



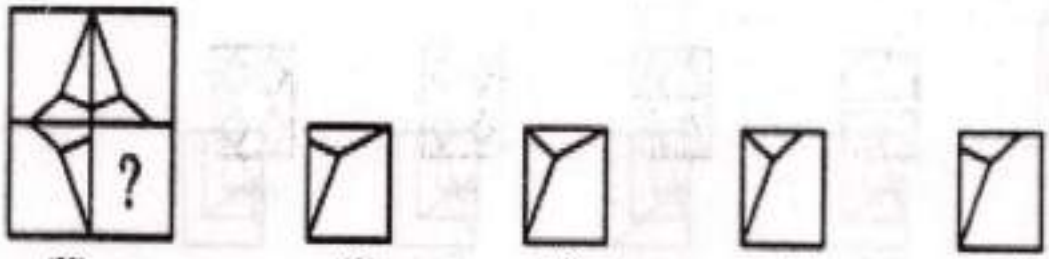
(X) (1) (2) (3) (4)

A) 1 B) 2 C) 3 D) 4

Answer: Option D

Explanation:

8. Identify the figure that completes the pattern.



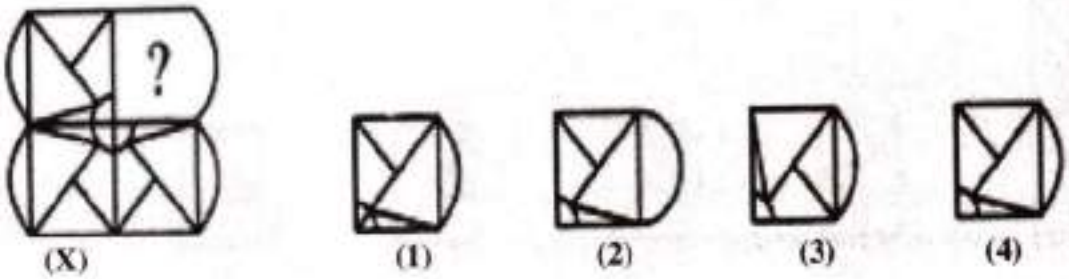
(X) (1) (2) (3) (4)

A) 1 B) 2 C) 3 D) 4

Answer: Option D

Explanation:

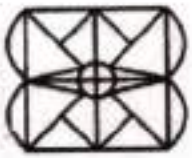
9. Identify the figure that completes the pattern.



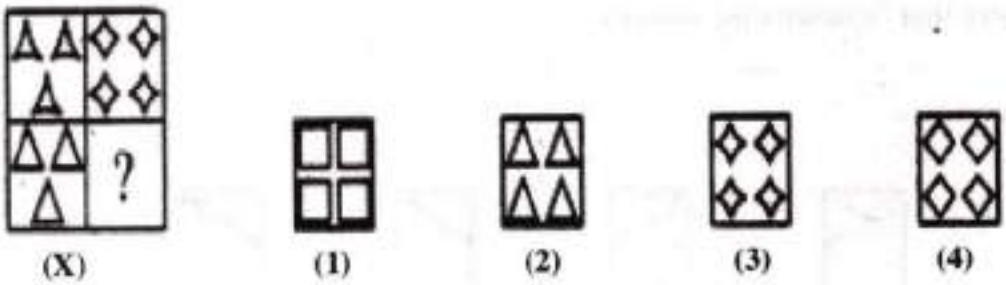
A) 1 B) 2 C) 3 D) 4

Answer: Option D

Explanation:



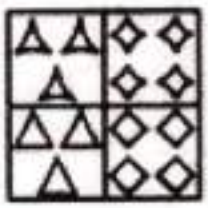
10. Identify the figure that completes the pattern.



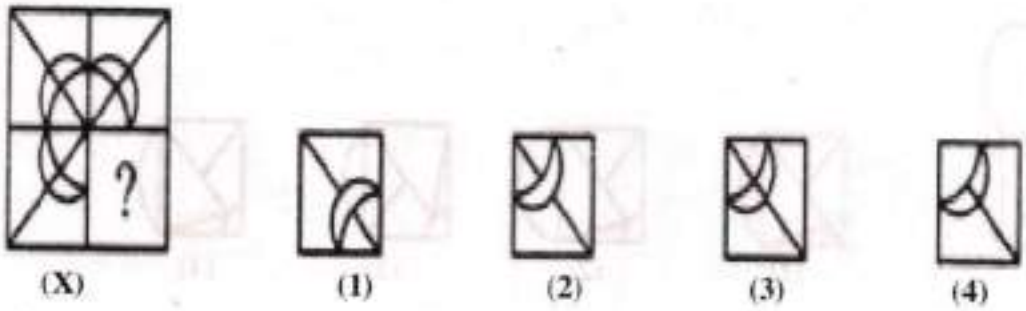
A) 1 B) 2 C) 3 D) 4

Answer: Option D

Explanation:



11. Identify the figure that completes the pattern.

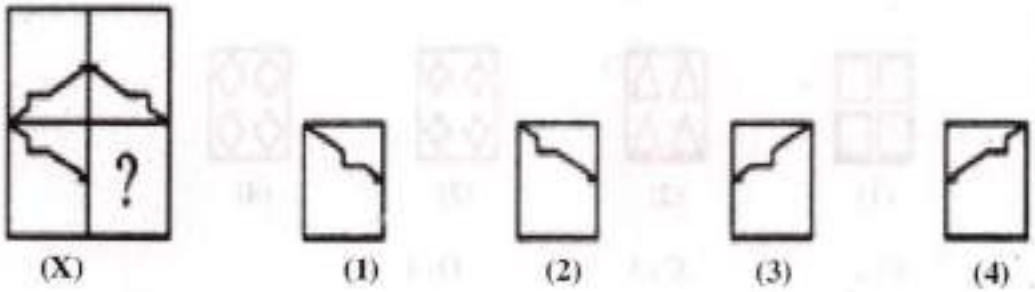


A) 1 B) 2 C) 3 D) 4

Answer: Option C

Explanation:

12. Identify the figure that completes the pattern.



A) 1 B) 2 C) 3 D) 4

Answer: Option D

Explanation:

13. Identify the figure that completes the pattern.

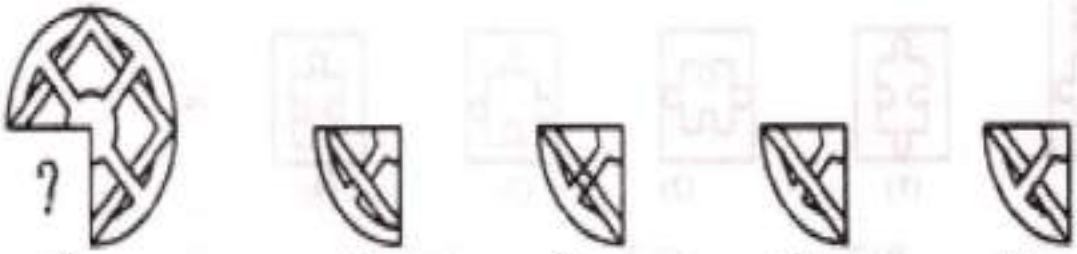
(X) (1) (2) (3) (4)

A) 1 B) 2 C) 3 D) 4

Answer: Option D

Explanation:

14. Identify the figure that completes the pattern.

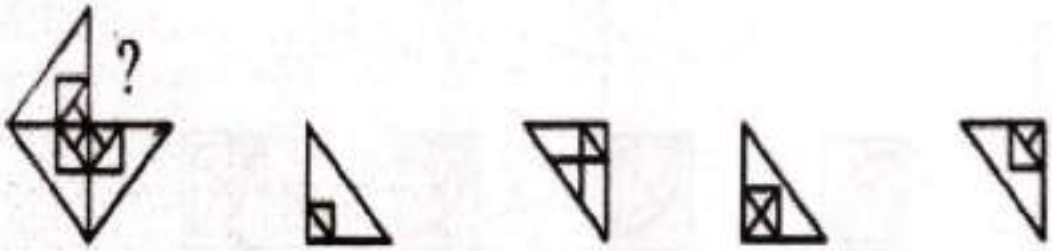


(X) (1) (2) (3) (4)

A) 1 B) 2 C) 3 D) 4

Answer: Option DExplanation:

15. Identify the figure that completes the pattern.



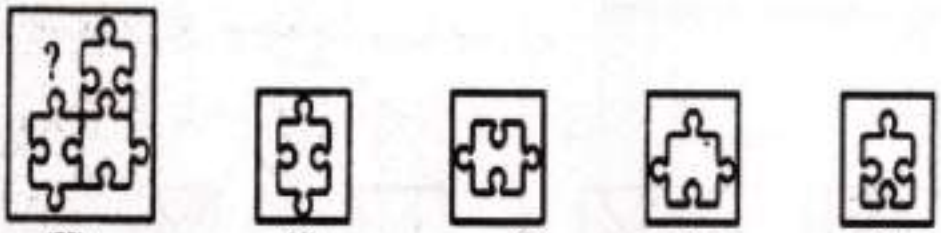
(X) (1) (2) (3) (4)

A) 1 B) 2 C) 3 D) 4

Answer: Option D

Explanation:

16. Identify the figure that completes the pattern.

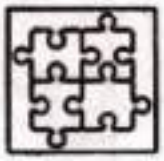


(X) (1) (2) (3) (4)

A) 1 B) 2 C) 3 D) 4

Answer: Option B

Explanation:



17. Identify the figure that completes the pattern.

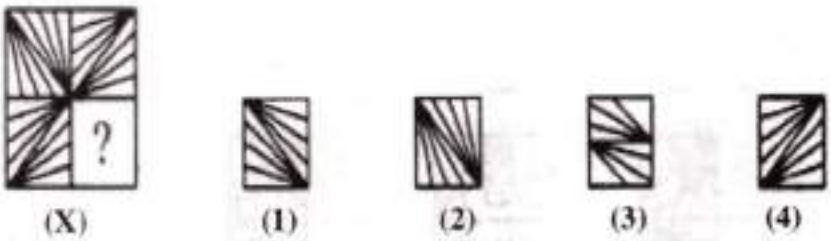
(X) (1) (2) (3) (4)

A) 1 B) 2 C) 3 D) 4

Answer: Option D

Explanation:

18. Identify the figure that completes the pattern.

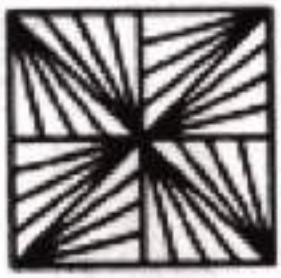


(X) (1) (2) (3) (4)

A) 1 B) 2 C) 3 D) 4

Answer: Option B

Explanation:



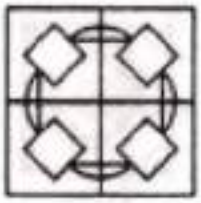
19. Identify the figure that completes the pattern.

(X) (1) (2) (3) (4)

A) 1 B) 2 C) 3 D) 4

Answer: Option B

Explanation:



20. Identify the figure that completes the pattern.

(X) (1) (2) (3) (4)

A) 1 B) 2 C) 3 D) 4

Answer: Option B

Explanation:

Exercise

In each of the following questions, select a figure from amongst the four alternatives, which when placed in the blank space of figure (X) would complete the pattern.

1. Identify the figure that completes the pattern.

(X) (1) (2) (3) (4)

A) 1 B) 2 C) 3 D) 4

2. Identify the figure that completes the pattern.

(X) (1) (2) (3) (4)

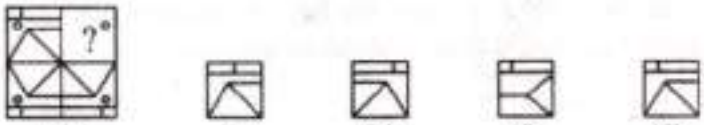
A) 1 B) 2 C) 3 D) 4

3. Identify the figure that completes the pattern.

(X) (1) (2) (3) (4)

A) 1 B) 2 C) 3 D) 4

4. Identify the figure that completes the pattern.



(X) (1) (2) (3) (4)

A) 1 B) 2 C) 3 D) 4

5. Identify the figure that completes the pattern.

(X) (1) (2) (3) (4)

A) 1 B) 2 C) 3 D) 4

ANSWERS

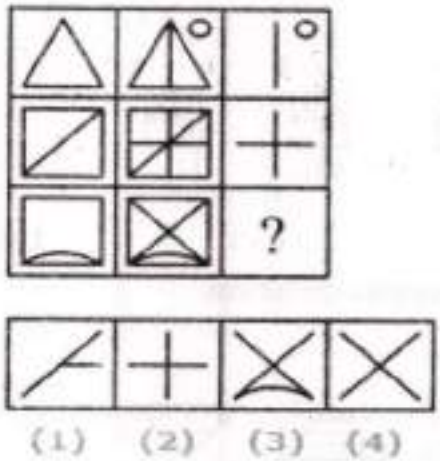
Question Nos	1	2	3	4	5
Answers	B	B	D	B	D

12.4 FIGURE MATRIX

SOLVED PROBLEMS

In each of the following questions, find out which of the answer figures (1), (2), (3) and (4) completes the figure matrix ?

1. Select a suitable figure from the four alternatives that would complete the figure matrix.



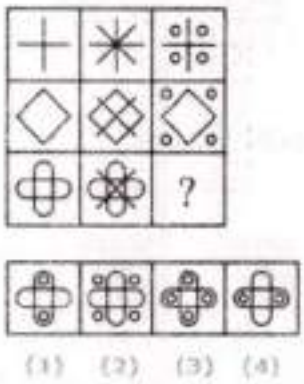
A) 1 B) 2 C) 3 D) 4

Answer: Option D

Explanation:

The third figure in each row comprises of parts which are not common to the first two figures.

2. Select a suitable figure from the four alternatives that would complete the figure matrix.



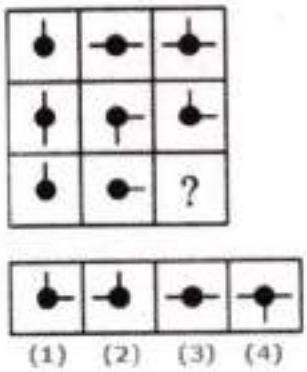
A) 1 B) 2 C) 3 D) 4

Answer: Option B

Explanation:

In each row, the second figure is obtained from the first figure by adding two mutually perpendicular line segments at the centre and the third figure is obtained from the first figure by adding four circles outside the main figure.

3. Select a suitable figure from the four alternatives that would complete the figure matrix.



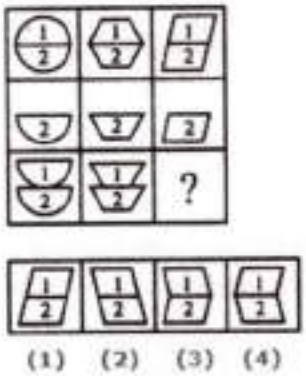
A) 1 B) 2 C) 3 D) 4

Answer: Option A

Explanation:

In each row, the third figure comprises of a black circle and only those line segments which are not common to the first and the second figures.

4. Select a suitable figure from the four alternatives that would complete the figure matrix.



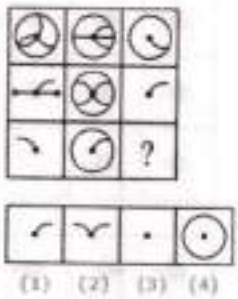
A) 1 B) 2 C) 3 D) 4

Answer: Option C

Explanation:

In each column, the second figure (middle figure) is obtained by removing the upper part of the first figure (uppermost figure) and the third figure (lowermost figure) is obtained by vertically inverting the upper part of the first figure.

5. Select a suitable figure from the four alternatives that would complete the figure matrix.



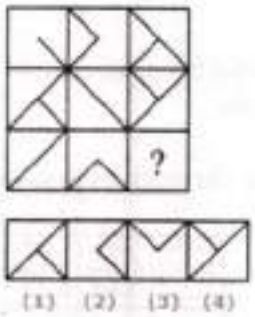
A) 1 B) 2 C) 3 D) 4

Answer: Option C

Explanation:

The third figure in each row comprises of the parts common to the first two figures.

6. Select a suitable figure from the four alternatives that would complete the figure matrix.



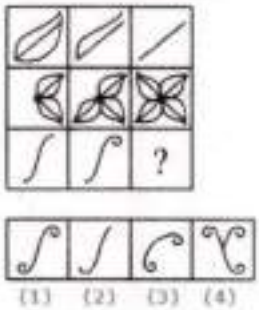
A) 1 B) 2 C) 3 D) 4

Answer: Option B

Explanation:

The third figure in each row comprises of parts which are not common to the first two figures.

7. Select a suitable figure from the four alternatives that would complete the figure matrix.



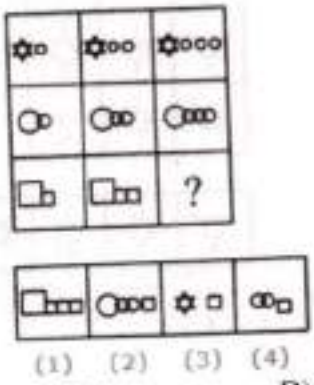
A) 1 B) 2 C) 3 D) 4

Answer: Option A

Explanation:

The number of components in each row either increases or decreases from left to right. In the third row, it increases.

8. Select a suitable figure from the four alternatives that would complete the figure matrix.



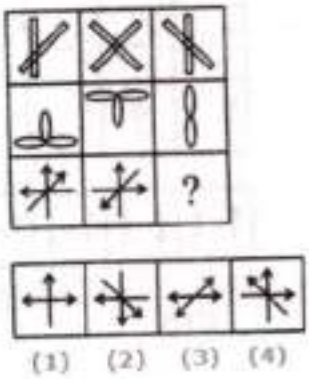
A) 1 B) 2 C) 3 D) 4

Answer: Option A

Explanation:

In each row, the second figure is obtained from the first figure by increasing the number of smaller elements by one and the third figure is obtained from the second figure by increasing the number of smaller elements by one.

9. Select a suitable figure from the four alternatives that would complete the figure matrix.



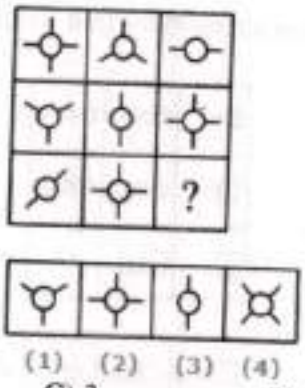
A) 1 B) 2 C) 3 D) 4

Answer: Option C

Explanation:

The third figure in each row comprises of parts which are not common to the first two figures.

10. Select a suitable figure from the four alternatives that would complete the figure matrix.



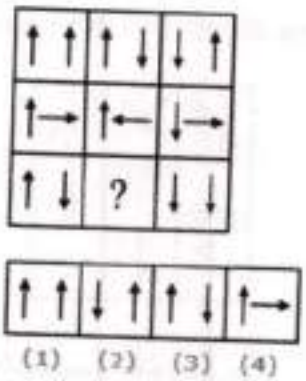
A) 1 B) 2 C) 3 D) 4

Answer: Option A

Explanation:

Each row (as well as each column) contains a figure consisting of a circle and two line segments, a figure consisting of a circle and three line segments and a figure consisting of a circle and four line segments.

11. Select a suitable figure from the four alternatives that would complete the figure matrix.



A) 1 B) 2 C) 3 D) 4

Answer: Option A

Explanation:

In each row, the second figure is obtained from the first figure by reversing the direction of the RHS arrow and the third figure is obtained from the second figure by reversing the direction of both the arrows.

12. Select a suitable figure from the four alternatives that would complete the figure matrix.

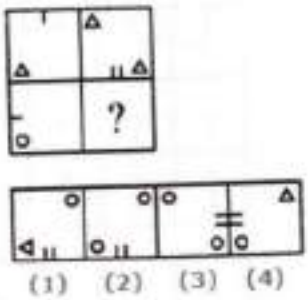
A) 1 B) 2 C) 3 D) 4

Answer: Option B

Explanation:

In each row, the figures are getting laterally inverted in each step. The number of components or the quantities are either increasing or decreasing from left to right sequentially.

13. Select a suitable figure from the four alternatives that would complete the figure matrix.



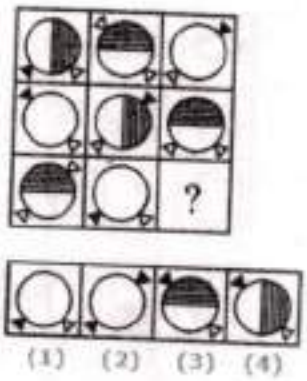
A) 1 B) 2 C) 3 D) 4

Answer: Option C

Explanation:

The second figure is obtained from the first figure by moving the line segment to the opposite side of the square boundary and replacing it with two similar line segments. Also, the element in the lower-left corner gets replaced by two similar elements - one placed in the upper-left and the other placed in the lower-right corner.

14. Select a suitable figure from the four alternatives that would complete the figure matrix.



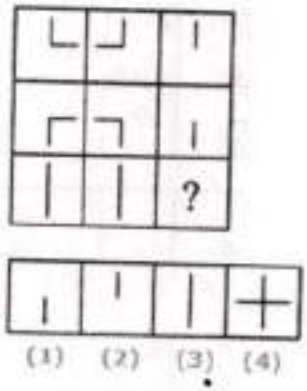
A) 1 B) 2 C) 3 D) 4

Answer: Option D

Explanation:

In each row, there are 3 types of shadings of circles - a circle is unshaded, another circle has its right half shaded with vertical lines and yet another circle has its upper half shaded with horizontal lines. There are three specified positions of the two triangles each of which is used only once in a row. Also, two of the figures in each row have one triangle shaded.

15. Select a suitable figure from the four alternatives that would complete the figure matrix.



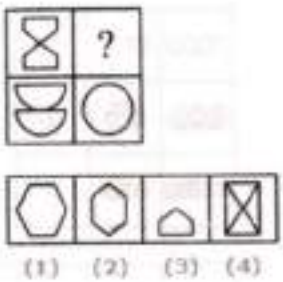
A) 1 B) 2 C) 3 D) 4

Answer: Option C

Explanation:

In each row, the third figure is a collection of the common elements (line segments) of the first and the second figures.

16. Select a suitable figure from the four alternatives that would complete the figure matrix.



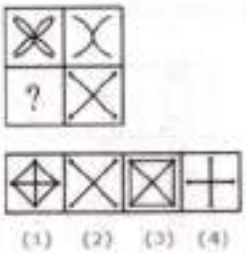
A) 1 B) 2 C) 3 D) 4

Answer: Option B

Explanation:

The two parts of the first figure are rearranged and joined along the longer sides. The common side is then lost to form the second figure.

17. Select a suitable figure from the four alternatives that would complete the figure matrix.



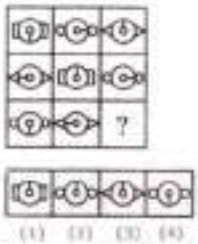
A) 1 B) 2 C) 3 D) 4

Answer: Option C

Explanation:

The second figure is a part of the first figure (but is not exactly the same as the first figure).

18. Select a suitable figure from the four alternatives that would complete the figure matrix.



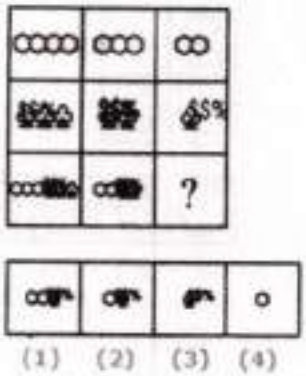
A) 1 B) 2 C) 3 D) 4

Answer: Option A

Explanation:

In each row, the central part of the first figure rotates either 90° CW or 90° ACW to form the central part of the second figure and the central part of the first figure rotates through 180° to form the central part of the third figure. Also, in each row, there are 3 types of side elements - rectangles, circles and triangles.

19. Select a suitable figure from the four alternatives that would complete the figure matrix.



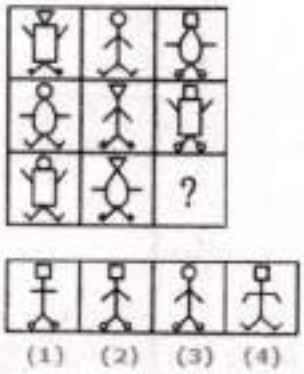
A) 1 B) 2 C) 3 D) 4

Answer: Option B

Explanation:

In each column, the third figure (lowermost figure) contains one less number of hexagons as the first figure (uppermost figure) and the same number of trees as the second figure (middle figure).

20. Select a suitable figure from the four alternatives that would complete the figure matrix.



A) 1 B) 2 C) 3 D) 4

Answer: Option B

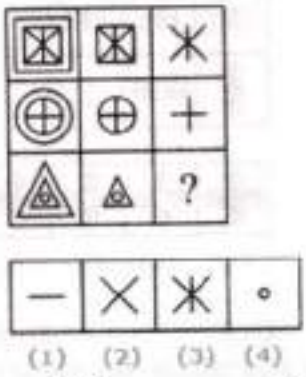
Explanation:

There are 3 types of faces, 3 types of bodies, 3 types of hands and 3 types of legs, each of which is used only once in a single row. So, the features which have not been used in the first two figures of the third row would combine to produce the missing figure.

Exercise

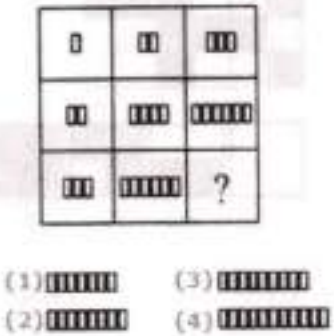
In each of the following questions, find out which of the answer figures (1), (2), (3) and (4) completes the figure matrix ?

1. Select a suitable figure from the four alternatives that would complete the figure matrix.



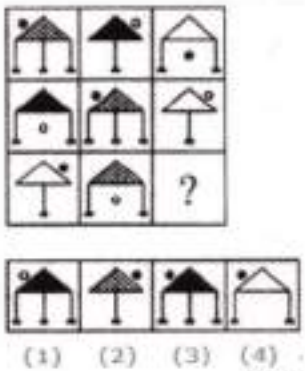
A) 1 B) 2 C) 3 D) 4

2. Select a suitable figure from the four alternatives that would complete the figure matrix..



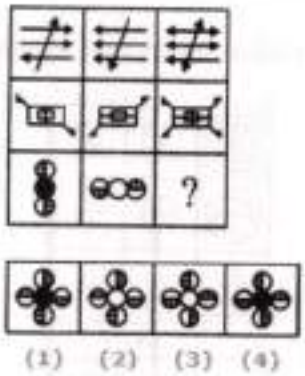
A) 1 B) 2 C) 3 D) 4

3. Select a suitable figure from the four alternatives that would complete the figure matrix.



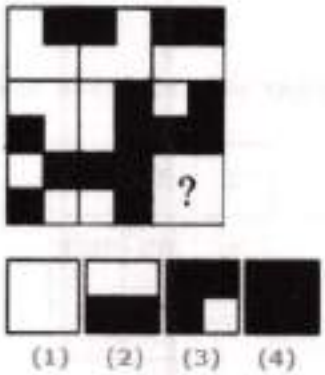
A) 1 B) 2 C) 3 D) 4

4. Select a suitable figure from the four alternatives that would complete the figure matrix.



A) 1 B) 2 C) 3 D) 4

5. Select a suitable figure from the four alternatives that would complete the figure matrix.



A) 1 B) 2 C) 3 D) 4

ANSWERS

Question Nos	1	2	3	4	5
Answers	D	C	C	D	D

12.5 LOGICAL VENN DIAGRAMS

TYPE-I
INTRODUCTION

The main aim of this section is to test your ability about the relation between some items of a group by diagrams. In these questions some figures of circles and some words are given. You have to choose a figure which represents the given words.

Some critical examples are given below:

Example 1:

If all the words are of different groups, then they will be shown by the diagram as given below.

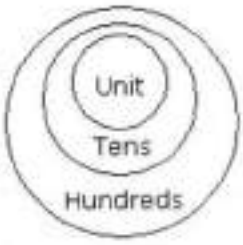
Dog, Cow, Horse

All these three are animals but of different groups, there is no relation between them. Hence they will be represented by three different circles.

Example 2:

If the first word is related to second word and second word is related to third word. Then they will be shown by diagram as given below.

Unit, Tens, Hundreds

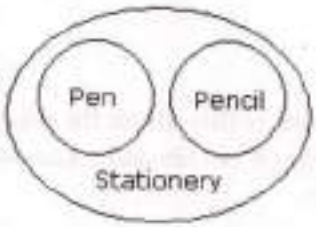


Ten units together make one Tens or in one tens, whole unit is available and ten tens together make one hundreds.

Example 3:

If two different items are completly related to third item, they will be shown as below.

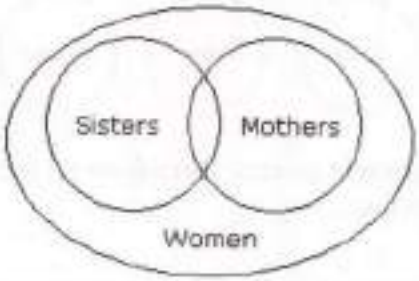
Pen, Pencil, Stationery



Example 4:

If there is some relation between two items and these two items are completely related to a third item they will be shown as given below.

Women, Sisters, Mothers



Some sisters may be mothers and vice-versa. Similarly some mothers may not be sisters and vice-versa. But all the sisters and all the mothers belong to women group.

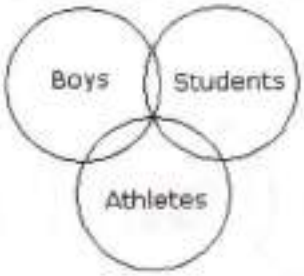
Example 5:

Two items are related to a third item to some extent but not completely and first two items totally different.

Students, Boys, Girls

The boys and girls are different items while some boys may be students. Similarly among girls some may be students.

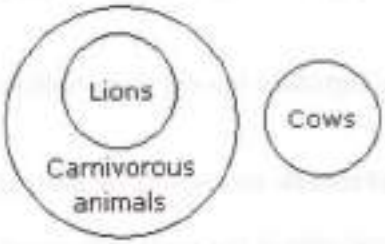
Example 6:
All the three items are related to one another but to some extent not completely.
Boys, Students, Athletes



Some boys may be students and vice-versa. Similarly some boys may be athletes and vice-versa. Some students may be athletes and vice-versa.

Example 7:
Two items are related to each other completely and third item is entirely different from first two.

Lions, Carnivorous, Cows

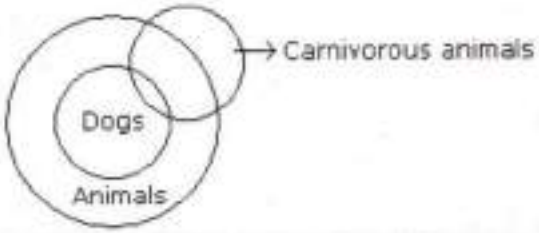


All the lions are carnivorous but no cow is lion or carnivorous.

Example 8:

First item is completely related to second and third item is partially related to first and second item.

Dogs, Animals, Flesh-eaters

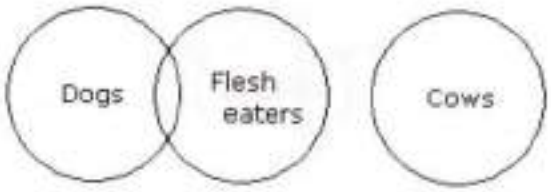


All the dogs are belonging to animals but some dogs are flesh eater but not all.

Example 9:

First item is partially related to second but third is entirely different from the first two.

Dogs, Flesh-eaters, Cows



Some dogs are flesh-eaters but not all while any dog or any flesh-eater cannot be cow.

TYPE-II INTRODUCTION

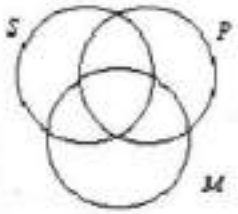
I. One good method to test quickly syllogisms is the Venn Diagram technique. This class assumes you are already familiar with diagramming categorical propositions. You might wish to review these now: Venn Diagrams.

A. A syllogism is a two premiss argument having three terms, each of which is used twice in the argument.

B. Each term (major, minor, and middle terms) can be represented by a circle.

C. Since a syllogism is valid if and only if the premisses entail the conclusion, diagramming the premisses will reveal the logical geography of the conclusion in a valid syllogism. If the syllogism is invalid, then diagramming the premisses is insufficient to show the conclusion must follow.

D. Since we have three classes, we expect to have three overlapping circles.



1. The area in the denoted *circle* represents where members of the class would be, and the area outside the circle represents all other individuals (the complementary class). The various area of the diagram are noted above.

2. *Shading* represents the knowledge that no individual exists in that area. *Empty space* represents the fact that no information is known about that area.

3. An "X" represents "at least one (individual)" and so corresponds with the word "some."

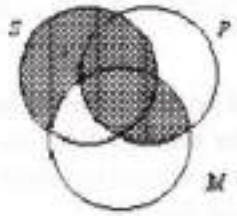
II. Some typical examples of syllogisms are shown here by their mood and figure.

A. EAE-1

1. The syllogism has an E statement for its major premiss, an Astatement for its minor premiss, and an E statement for its conclusion. By convention the conclusion is labeled with S (the minor term) being the subject and P (the major term) being the predicate. The position of the middle term is the "left-hand wing."

2. The form written out is
No M is P.
All S is M
No S is P.

3. Note, in the diagram below, how the area in common between S and P has been completely shaded out indicating that "No S is P." The conclusion has been reached from diagramming only the two premisses. All syllogisms of the form EAE-1 are valid.



B. AAA-1

1. This syllogism is composed entirely of "A" statements with the M-terms arranged in the "left-hand wing" as well.

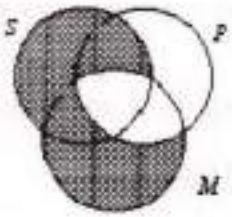
2. Its form is written out as

All M is P.

All S is M.

All S is P.

3. Note, in the diagram below, how the only unshaded area of S is in all three classes. The important thing to notice is that this area of S is entirely within the P class. Hence, the AAA-1 syllogism is always valid. In ordinary language the AAA-1 and the EAE-1 syllogisms are by far the most frequently used.



C. AII-3

1. The AII-3 syllogism has the M-terms arranged in the subject position--the right side of the brick.

2. This syllogism sets up as

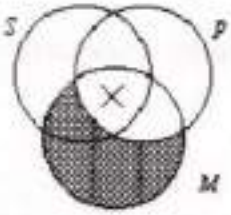
All M is P.

Some M is S.

Some S is P.

3. When diagramming the syllogism, notice how you are "forced" to put the "X" from the minor premiss in the area of the diagram shared by all three classes. The "X" cannot go on the P-line because the shading indicates this part of the SM area is empty. This "logical" forcing enables you to read-off the conclusion, "Some S is P."

4. This syllogism is a good example why *the universal premiss should be diagrammed before diagramming a particular premiss*. If we were to diagram the particular premiss first, the "X" would go on the line. Then, we would have to move it when we diagram the universal premiss because the universal premiss empties an area where the "X" could have been.



D. AII-2

1. The AII-2 has the M terms in the predicate of both premisses.

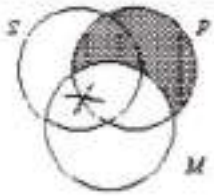
2. The syllogism is written out as

All P is M.

Some S is M.

Some S is P.

3. The diagram below shows that the "X" could be in the SMP area or in the SPM area. Since we do not know exactly which area it is in, we put the "X" on the line, as shown. *When an "X" is on a line, we do not know with certainty exactly where it is.* So, when we go to read the conclusion, we do not know where it is. Since the conclusion cannot be read with certainty, the AII-2 syllogism is invalid.

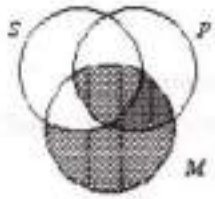


E. The final syllogism described here, the EAO-4 raises some interesting problems.

1. Notice that in this syllogism there are universal premisses with a particular conclusion.

2. Its form is written out as
No P is M.
<u>All M is S.</u>
Some S is not P.

3. And its diagram is rather easily drawn as



4. When we try to read the conclusion, we see that there is no "X" in the SMP class. We must conclude that the syllogism is invalid because we cannot read-off "Some S is not P."

5. However, if we know that M exists, all the members of M have to be in the SMP class. These M's are S's as well. Hence, we know that some S's are not P's! In other words, the EOA-4 syllogism is valid if we know ahead of time the additional premiss "M exists."

6. Most contemporary logicians have concluded that we should not assume any class exists unless we have evidence.

a. We want to talk about theoretical entities without assuming their existence.

b. For example, in science and mathematics, our logic will apply when talking about circles, points, frictionless planes, and freely falling bodies even though these entities do not physically exist.

c. This diagram illustrates the contemporary topic called the problem of existential import. When can we reasonably conclude something exists? How does this conclusion affect our theory of logical validity?

Each of these questions given below contains three elements. These elements may or may not have some inter linkage. Each group of elements may fit into one of these diagrams at (A), (B), (C), (D) and/or (E). You have to indicate the group of elements which correctly fits into the diagrams.

SOLVED EXAMPLES

1. Which of the following diagrams indicates the best relation between Travelers, Train and Bus ?

A.

B.

C.

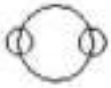
D.

Answer: Option C

Explanation:

Bus and Train are different from each other but some travelers travel by bus and some travel by train.

2. Which of the following diagrams indicates the best relation between Profit, Dividend and Bonus ?

A. 

B.

C.

D.

Answer: Option B

Explanation:

Bonus and Dividend are different from each other. But both these are parts of profit

3. Which of the following diagrams indicates the best relation between Women, Mothers and Engineers ?

A.

B.

C.

D.

Answer: Option A

Explanation:

All mothers are women and some mothers and some women may be engineers.

4. Which of the following diagrams indicates the best relation between Factory, Product and Machinery ?

A.

B.

C.

D.

Answer: Option D

Explanation:

Product and Machinery are different from each other but both are found in Factory.

5. Which of the following diagrams indicates the best relation between Author, Lawyer and Singer ?

A.

B.

C.

D.

Answer: Option B

Explanation:

All the three are different professions.

Each of these questions given below contains three elements. These elements may or may not have some inter linkage. Each group of elements may fit into one of these diagrams at (A), (B), (C), (D) and/or (E). You have to indicate the group of elements which correctly fits into the diagrams.

6. Which of the following diagrams indicates the best relation between Judge, Thieves and Criminals ?

A.

B.

C.

D.

Answer: Option B

Explanation:

All the thieves are criminals while judge is different from these.

7. Which of the following diagrams indicates the best relation between India, Haryana and World ?

A.

B.

C.

D.

Answer: Option D

Explanation:

Haryana is in India and India is in the World.

8. Which of the following diagrams indicates the best relation between Pigeon, Bird and Dog ?

A.

B.

C.

D.

Answer: Option A

Explanation:

All the pigeons are birds while dog is different from these.

9. Which of the following diagrams indicates the best relation between Earth, Sea and Sun ?

A.

B.

C.

D.

Answer: Option A
Explanation:
Sea is a part of Earth while Sun is different from these two.

10. Which of the following diagrams indicates the best relation between Hockey, Football and Cricket ?

A.

B.

C.

D.

Answer: Option B
Explanation:
All these three games are different from each other.

Each of these questions given below contains three elements. These elements may or may not have some inter linkage. Each group of elements may fit into one of these diagrams at (A), (B), (C), (D) and/or (E). You have to indicate the group of elements which correctly fits into the diagrams.

11. Which of the following diagrams indicates the best relation between Iron, Lead and Nitrogen ?

A.

B.

C.

D.

Answer: Option B
Explanation:
All these three elements are different from each other

12. Which of the following diagrams indicates the best relation between Examination, Questions and Practice ?

A.

B.

C.

D.

Answer: Option C
Explanation:
Some questions are asked in examination and some in practice but examination and practice are different from each other.

13. Which of the following diagrams indicates the best relation between Bulb, Lamp and Light ?

A.

B.

C.

D.

Answer: Option C

Explanation:

Bulb and Lamp are different from each other but light is obtained from both.

14. Which of the following diagrams indicates the best relation between Lion, Dog and Snake ?

A.

B.

C.

D.

Answer: Option C

Explanation:

All the three are different from each other.

15. Which of the following diagrams indicates the best relation between Moon, Sun and Earth ?

A.

B.

C.

D.

Answer: Option C

Explanation:

All the three are different from each other.

Each of these questions given below contains three elements. These elements may or may not have some inter linkage. Each group of elements may fit into one of these diagrams at (A), (B), (C), (D) and/or (E). You have to indicate the group of elements which correctly fits into the diagrams.

16. Which of the following diagrams indicates the best relation between Hospital, Nurse and Patient ?

A.

B.

C.

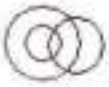
D.

Answer: Option C

Explanation:

Hospital consists of nurse and patient but nurse and patient are of two different nature.

17. Which of the following diagrams indicates the best relation between Mercury, Zinc and Metal ?

A. 

B.

C.

D.

Answer: Option B
Explanation:
Mercury and Zinc both are different from one another but belong to metal.

18. Which of the following diagrams indicates the best relation between Teacher, Writer and Musician?

A.

B.

C.

D.

Answer: Option A
Explanation:
A teacher may or may not be a writer and musician. Similarly a musician may or may not be a teacher and writer and so a writer may or may not be a teacher and musician.

19. Which of the following diagrams indicates the best relation between Boys, Girls and Students ?

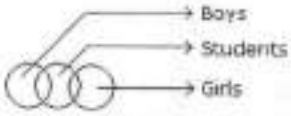
A.

B.

C.

D.

Answer: Option D
Explanation:



20. Which of the following diagrams indicates the best relation between Tall man, Black haired people and Indians ?

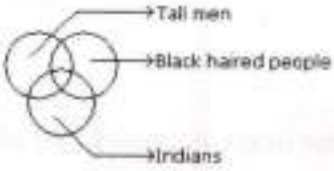
A.

B.

C.

D.

Answer: Option A
Explanation:



ADDITIONAL INPUTS

UNIT- 13

Additional Inputs		
Unit 13		
Day 71	13.1 Matrices, Surds and Indices	203- 229
Day 72	13.2 Quadratic Equations	
Day 73	13.3 Coordinate Geometry and Trigonometry	
Day 74	13.4 Differentiation	
Day 75	13.5 Decision Making	

13.1 MATRICES, SURDS AND INDICES

Definitions

Matrix

A matrix is an arrangement set of numbers in terms of rows and columns.

Example. Let A denote the matrix

$$\begin{bmatrix} 2 & 5 & 7 & 8 \\ 5 & 6 & 8 & 9 \\ 3 & 9 & 0 & 1 \end{bmatrix}$$

This matrix A has three rows and four columns. We say it is a 3 x 4 matrix.

We denote the element on the second row and fourth column with $a_{2,4}$.

Square matrix

If a matrix A has n rows and n columns then we say it is a square matrix.

In a square matrix the elements $a_{i,i}$, with i = 1,2,3,... , are called diagonal elements.
Remark. There is no difference between a 1 x 1 matrix and an ordinary number.

Diagonal matrix

A diagonal matrix is a square matrix with all non-diagonal elements as 0.
The diagonal matrix is completely defined by the diagonal elements.

Example. $\begin{bmatrix} 7 & 0 & 0 \\ 0 & 5 & 0 \\ 0 & 0 & 6 \end{bmatrix}$

The matrix is denoted by diag (7 , 5 , 6)

Row matrix

A matrix with one row is called a row matrix.

[2 5 -1 5]

Column matrix

A matrix with one column is called a column matrix.

$$\begin{bmatrix} 2 \\ 4 \\ 3 \\ 0 \end{bmatrix}$$

Matrices of the same kind

Matrix A and B are of the same kind if and only if
A has as many rows as B and A has as many columns as B

$$\begin{bmatrix} 7 & 1 & 2 \\ 0 & 5 & 6 \\ 3 & 4 & 6 \end{bmatrix} \text{ and } \begin{bmatrix} 4 & 0 & 3 \\ 1 & 1 & 4 \\ 8 & 6 & 2 \end{bmatrix}$$

The transposed matrix of a matrix

The n x m matrix B is the transposed matrix of the m x n matrix A if and only if
The ith row of A = the ith column of B for (i = 1,2,3,..m)
So $a_{i,j} = b_{j,i}$

The transposed matrix of A is denoted T(A) or A^T

$$\begin{bmatrix} 7 & 1 \\ 0 & 5 \\ 3 & 4 \end{bmatrix}^T = \begin{bmatrix} 7 & 0 & 3 \\ 1 & 5 & 4 \end{bmatrix}$$

0-matrix

When all the elements of a matrix A are 0, we call A a 0-matrix.
We write shortly 0 for a 0-matrix.

An identity matrix I

An identity matrix I is a diagonal matrix with all the diagonal elements = 1.

$$[1] \qquad \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

A scalar matrix S

A scalar matrix S is a diagonal matrix whose diagonal elements all contain the same scalar value.
$a_{i,i} = a_{i,j}$ for (i = 1,2,3...n)

$$\begin{bmatrix} 7 & 0 & 0 \\ 0 & 7 & 0 \\ 0 & 0 & 7 \end{bmatrix}$$

SURDS AND INDICES

1. *Laws of Indices:*
   i. $a^m \times a^n = a^{m+n}$
   ii. $\frac{a^m}{a^n} = a^{m-n}$
   iii. $(a^m)^n = a^{mn}$
   iv. $(ab)^n = a^n b^n$
   v. $\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$
   vi. $a^0 = 1$
2. *Surds:*

   Let a be rational number and n be a positive integer such that $a^{(1/n)}$ is not a rational number.

   Then, $a^{1/n}$ is called a surd of order n.
3. *Laws of Surds:*

   i. $\sqrt[n]{a} = a^{(1/n)}$

   ii. $\sqrt[n]{ab} = \sqrt[n]{a} \times \sqrt[n]{b}$

   iii. $\sqrt[n]{\frac{a}{b}} = \left(\frac{a}{b}\right)^{1/n}$

   iv. $\left[(a)^n\right]^{1/n} = a$

   v. $\sqrt[m]{\sqrt[n]{a}} = \sqrt[mn]{a}$

1. $(17)^{3.5} \times (17)^? = 17^8$

Explanation:

Let $(17)^{3.5} \times (17)^x = 17^8$.

Then, $(17)^{3.5+x} = 17^8$.

$\therefore 3.5 + x = 8$

$\Rightarrow x = (8 - 3.5)$

$\Rightarrow x = 4.5$

2. If $\left(\frac{a}{b}\right)^{x-1} = \left(\frac{b}{a}\right)^{x-3}$ then find the value of x

Explanation:

Given $\left(\frac{a}{b}\right)^{x-1} = \left(\frac{b}{a}\right)^{x-3}$

$\left(\frac{a}{b}\right)^{x-1} = \left(\frac{a}{b}\right)^{-(x-3)}$

$\Rightarrow x - 1 = 3 - x$

$\Rightarrow 2x = 4$

$\Rightarrow x = 2.$

3. Given that $10^{0.48} = x$, $10^{0.70} = y$ and $x^z = y^2$, then find the value of z

Explanation:

$x^z = y^2 \quad \Leftrightarrow \quad 10^{(0.48z)} = 10^{(2 \times 0.70)} = 10^{1.40}$

$\Rightarrow 0.48z = 1.40$

$\Rightarrow z = \frac{140}{48} = \frac{35}{12} = 2.9$

4. If $5^a = 3125$, then find the value of $5^{(a-3)}$

Explanation:

$5^a = 3125 \quad \Leftrightarrow \quad 5^a = 5^5$

$\Rightarrow a = 5.$

$\therefore 5^{(a-3)} = 5^{(5-3)} = 5^2 = 25.$

5. If $3^{(x-y)} = 27$ and $3^{(x+y)} = 243$, then x is equal to:

Explanation:

$3^{x-y} = 27 = 3^3 \Leftrightarrow x - y = 3$ ....(i)

$3^{x+y} = 243 = 3^5 \Leftrightarrow x + y = 5$ ....(ii)

On solving (i) and (ii), we get $x = 4$.

6. $(256)^{0.16} \times (256)^{0.09} = ?$

Explanation:

$(256)^{0.16} \times (256)^{0.09} = (256)^{(0.16+0.09)}$

$= (256)^{0.25}$

$= (256)^{(25/100)}$

$= (256)^{(1/4)}$

$= (4^4)^{(1/4)}$

$= 4^{4(1/4)}$

$= 4^1$

$= 4$

7. The value of $[(10)^{150} \div (10)^{146}]$

Explanation:

$$(10)^{150} \div (10)^{146} = \frac{(10)^{150}}{(10)^{146}}$$

$= 10^{150-146}$

$= 10^4$

$= 10000$

8.

$$\frac{1}{1+x^{b-a}+x^{c-a}}+\frac{1}{1+x^{a-b}+x^{c-b}}+\frac{1}{1+x^{b-c}+x^{a-c}}=?$$

Explanation:

$$\text{Given Exp} = \frac{1}{1+\frac{x^b}{x^a}+\frac{x^b}{x^a}}+\frac{1}{1+\frac{x^a}{x^b}+\frac{x^b}{x^b}}+\frac{1}{1+\frac{x^b}{x^c}+\frac{x^a}{x^c}}$$

$$= \frac{x^a}{x^a+x^b+x^c}+\frac{x^b}{x^a+x^b+x^c}+\frac{x^c}{x^a+x^b+x^c}$$

$$= 1.$$

9. $(25)^{7.5} \times (5)^{2.5} \div (125)^{1.5} = 5^7$

Explanation:

Let $(25)^{7.5} \times (5)^{2.5} \div (125)^{1.5} = 5^x$.

Then $\frac{(5^2)^{7.5} \times (5)^{2.5}}{(5^3)^{1.5}} = 5^x$

$= \frac{(5)^{2 \times 7.5} \times (5)^{2.5}}{(5)^{3 \times 1.5}} = 5^x = \frac{(5)^{15} \times (5)^{2.5}}{(5)^{4.5}} = 5^x$

$\Rightarrow 5^x = 5^{(15+2.5-4.5)}$

$\Rightarrow 5^x = 5^{13}$

$\therefore\ x = 13.$

10. Find the value of $(0.04)^{-1.5} = ?$

Explanation:

$$(0.04)^{-1.5} = \left(\frac{4}{100}\right)^{-1.5} = \left(\frac{1}{25}\right)^{-(\frac{3}{2})} = (25)^{(\frac{3}{2})} = (5^2)^{\frac{3}{2}}$$

$$= (5)^{2 \times (3/2)} = 5^3$$

Exercise

1. $\dfrac{(243)^{\frac{n}{5}} \times 3^{2n+1}}{9^{n} \times 3^{n-1}} = ?$

A. 1
B. 2
C. 9
D. 3^n

2. $\dfrac{1}{1+a^{(n-m)}} + \dfrac{1}{1+a^{(m-n)}} = ?$

A. 0
B. $\frac{1}{2}$
C. 1
D. a^{m+n}

3. If m and n are whole numbers such that $m^n = 121$, the value of $(m - 1)^{n+1}$ is:

A. 1
B. 10
C. 121
D. 1000

4. $\left(\dfrac{x^b}{x^c}\right)^{(b+c-a)} \cdot \left(\dfrac{x^c}{x^a}\right)^{(c+a-b)} \cdot \left(\dfrac{x^a}{x^b}\right)^{(a+b-c)} = ?$

A. x^{abc}
B. 1
C. $x^{ab+bc+ca}$
D. x^{a+b+c}

5. If $x = 3 + 22$, then the value of $\left(x - \dfrac{1}{x}\right)$ is:

A. 1
B. 2
C. 22
D. 33

ANSWERS

Question Nos	1	2	3	4	5
Answers	C	C	D	B	B

13.2 QUADRATIC EQUATIONS

INTRODUCTION

What is a quadratic equation

A quadratic equation is an equation of form $ax^2 + bx + c = 0$ that involves only two things besides numbers: a variable and a square of this variable.

Examples: $2x^2 - x - 1 = 0$, $x^2 - 1 = 0$, and so on. Usually, they are arranged so that the square part goes first, then the part with the variable, and some constant, while the right side is equal to zero. In your tests, a, b and c will be actual numbers.

There are two ways of solving quadratics: factoring and using the Quadratic formula. Of these methods, the Quadratic Formula is the most reliable method that will give you the correct answer without guesswork. Here's how it works.

Let's say that you have an equation $ax^2 + bx + c = 0$. If your equation is in some other form, for example $x^2 = -2x + 3$, convert it to standard form with x^2 first, x part second, and the number third. The previous example $x^2 = -2x + 3$, for example, converts to $x^2 + 2x - 3 = 0$.

First, compute the discriminant. Discriminant = $b^2 - 4ac$. You need to remember this formula. The discriminant can be positive, zero, or negative.

If the discriminant is positive, the quadratic equation has two different solutions (roots). One solution is $x_1 = \frac{-b - \sqrt{b^2 - 4ac}}{2a}$. The other solution is $x_2 = \frac{-b + \sqrt{b^2 - 4ac}}{2a}$.

These solutions are so similar, that they are often written as $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$. The +/- sign means that one solution comes with a "+" sign, and the other with a "-" sign. Last formula is called quadratic formula.

If the discriminant is equal to zero, the quadratic equation has one solution (root).
The root in this case is simply $x = -\frac{b}{2a}$.

If the discriminant is negative, the quadratic equation has no solution (root) in the area of real

numbers.

Example 1

Solve quadratic equation $x^2 - 5x - 6 = 0$ by using the quadratic formula.

First calculate the discriminant: $d = (-5)^2 - 41(-6) = 25 + 4(6) = 25 + 24 = 29$.

Discriminant is positive, so the equation has two roots:

$$x_1 = \frac{-(-5) + \sqrt{49}}{2} = \frac{5+7}{2} = \frac{12}{2} = 6$$

and

$$x_2 = \frac{-(-5) - \sqrt{49}}{2} = \frac{5-7}{2} = -\frac{2}{2} = -1$$

The two solutions are 6 and -1

Example 2

Solve quadratic equation $2x^2 + 4x - 3$ by using the quadratic formula.
First calculate the discriminant:

$d = 4^2 - 4.2(-3) = 16 + 4(2)(3) = 16 + 24 = 40$

Discriminant is positive, so the equation has two roots:

$$x_1 = \frac{-4 + \sqrt{40}}{2} = \frac{-2 + \sqrt{10}}{2} = \frac{-2 + \sqrt{10}}{2}$$

and

$$x_2 = \frac{-4 - \sqrt{40}}{2} = \frac{-2 - \sqrt{10}}{2} = \frac{-2 - \sqrt{10}}{2}$$

The two solutions are $\frac{-2 + \sqrt{10}}{2}$ and $\frac{-2 - \sqrt{10}}{2}$

Example 3

Solve quadratic quation $x^2 - 10x + 25 = 0$ by using the quadratic formula.
Calculating the discriminant:

$d = (-10)^2 - 4(1)(25) = 100 - 100 = 0$

Discriminant is equal to zero, so the equation has only one root:

$$x = \frac{-10 + \sqrt{0}}{2} = 5$$

The solution is 5.

Example 4

Solve quadratic equation $x^2 + 6x + 10 = 0$ by using the quadratic formula.
Calculating the discriminant:

$d = 6^2 - 4(1)(10) = 36 - 40 = -4$

Discriminant is negative, so the equation has no root in real numbers.
The equation has no solution in real numbers.

Solved Problems

1. Solve the quadratic equation $x^2 - 5x + 6 = 0$

- So factor the expression on the left, we need to write $x^2 - 5x + 6$ in the form factored:

  $x^2 - 5x + 6 = (x + a)(x + b)$

- so that the sum of a and b is -5 and their product is 6. The numbers that satisfy these conditions are - 2 and - 3. Hence
  $x^2 - 5x + 6 = (x - 2)(x - 3)$

- Substitute into the original equation and solve.
  $(x - 2)(x - 3) = 0$

- $(x - 2)(x - 3)$ is equal to zero if
  $x - 2 = 0$

  or

  $x - 3 = 0$

2. Solve the quadratic equation $x^2 - 3x = 0$

- Given
  $x^2 - 3x = 0$

- Factor x out in the expression on the left.
  $x(x - 3) = 0$

- For the product $x(x - 3)$ to be equal to zero we nedd to have
  $x = 0$ or $x - 3 = 0$

- Solve the above simple equations to obtain the solutions.
  $x = 0$

  or

$x = 3$

- As an exercise, check that $x = 0$ and $x = 3$ are solutions to the given equation.

3. Solve the following equation $2x^2 + x - 21 = 0$

- We first try to write $2x^2 + x - 21$ in the factored form
  $2x^2 + x - 21 = (2x + a)(x + b)$

- Such that the product a b is equal to - 21 and $a + 2b = 1$

  two pairs of numbers gives a product of - 21: either -3 and 7 or 3 and -7. After some trial exercises it found that $2x^2 + x - 21$ may be factored as follows:

  $2x^2 + x - 21 = (2x + 7)(x - 3)$

- We now substitute into the original equation

  $(2x + 7)(x - 3) = 0$

- and solve the following simpler equations
  $2x + 7 = 0$

  $x - 3 = 0$

- to obtain
  $x = -7/2$

  or $x = 3$

- As an exercise, check that $x = 0$ and $x = 3$ are solutions to the given equation.

4. Solve the following equation $(x - 1)(x + 1/2) = -x + 1$

- At first we might be tempted into expanding the left side of the equation. However after examination of the right side, the above equation may be written as:
  $(x - 1)(x + 1/2) = -(x - 1)$

- Write the equation with the right side equal to zero.

  $(x - 1)(x + 1/2) + (x - 1) = 0$

- We now factor (x - 1) out.

  $(x - 1)(x + 1/2 + 1) = 0$

- and solve the following simpler equations
  $x - 1 = 0$

  $x + 3/2 = 0$

- to obtain
  $x = 1$

  or

  $x = -3/2$

Exercise

For the following equations, solve using the quadratic formula or state that there are no real number solutions.....

1. $9x^2 + 10x = 0$

   $x = 0, x = -\frac{9}{10}$

2. $2x^2 + 11x = 10$.....

   $\frac{-11 \pm \sqrt{201}}{4}$

3. $5x^2 - 3x - 1 = 0$

   $\frac{3 \pm \sqrt{29}}{10}$

4. $x^2 - 2x + 3 = 0$

   no real number solutions

5. $x^2 - 4x - 7 = 8$

   $x = 2 \pm \sqrt{19}$

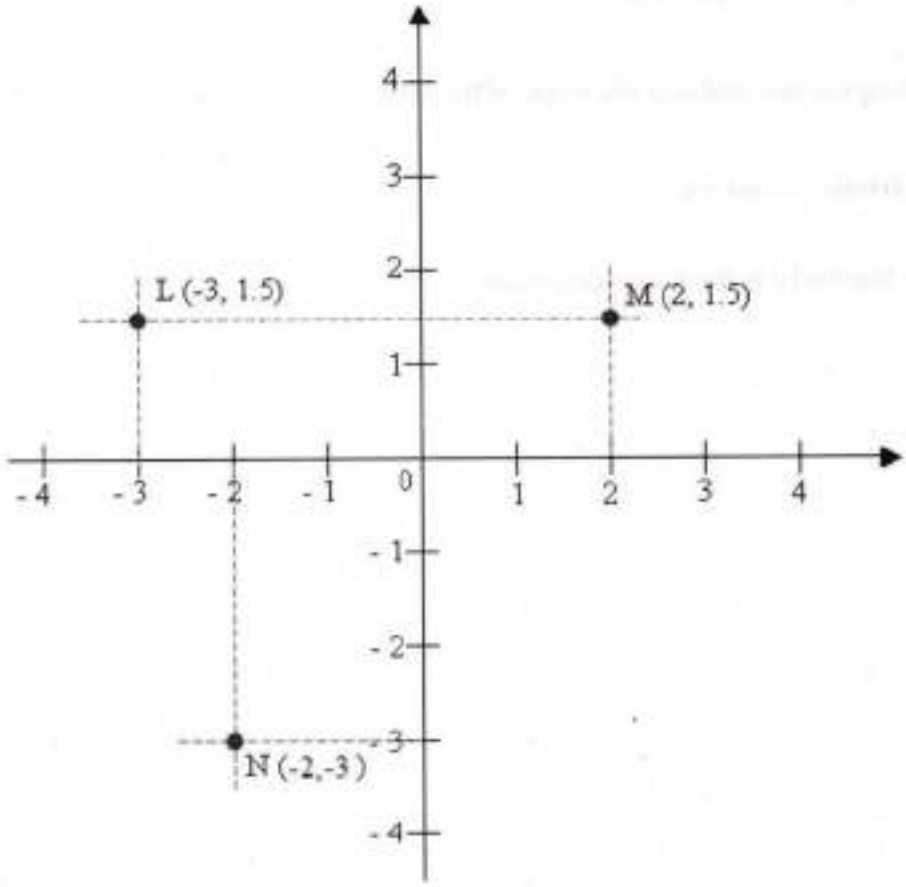
13.3 COORDINATE GEOMETRY & TRIGONOMETRY

CORDINATE GEOMETRY

INTRODUCTION

The coordinate plane or Cartesian plane is a basic concept for coordinate geometry. It describes a two-dimensional plane in terms of two perpendicular axes: x and y. The x-axis indicates the horizontal direction while the y-axis indicates the vertical direction of the plane. In the coordinate plane, points are indicated by their positions along the x and y-axes.

For example: In the coordinate plane below, point L is represented by the coordinates (–3, 1.5) because it is positioned on –3 along the x-axis and on 1.5 along the y-axis. Similarly, you can figure out the positions for the points M = (2, 1.5) and N = (–2, –3).



If $A(x_1, y_1)$ and $B(x_2, y_2)$, then

distance d, from A to B = $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

midpoint, M, of AB = $M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$

slope, m, of $\overleftrightarrow{AB}$ = $m = \frac{y_2 - y_1}{x_2 - x_1}$

Following is a list of the equations of lines:

Standard form : $ax + by + c = 0$

a, b, c are real numbers. a and b are not both zero

Point- Slope form: $y - y_1 = m(x - x_1)$

(x_1, y_1) is a point on the line and m is the slope of the line

Slope- intercept from: $y = mx + c$

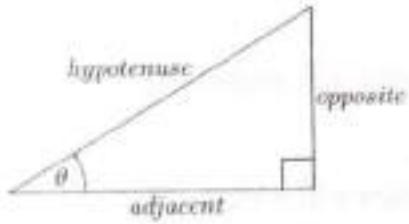
m is the slope the line and c is the y-intercept value

TRIGNOMETRY

Right Triangle Definition

Assume that:

$0 < \theta < \frac{\pi}{2}$ or $0^\circ < \theta < 90^\circ$



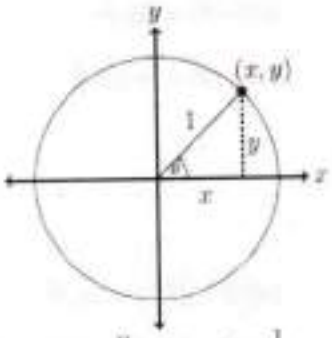
$\sin\theta = \frac{opp}{hyp}$ $\csc\theta = \frac{hyp}{opp}$

$\cos\theta = \frac{adj}{hyp}$ $\sec\theta = \frac{hyp}{adj}$

$\tan\theta = \frac{opp}{adj}$ $\cot\theta = \frac{adj}{opp}$

Unit Circle Definition

Assume θ can be any angle.



$\sin\theta = \frac{y}{1}$ $\csc\theta = \frac{1}{y}$

$\cos\theta = \frac{x}{1}$ $\sec\theta = \frac{1}{x}$

$\tan\theta = \frac{y}{x}$ $\cot\theta = \frac{x}{y}$

Identities and Formulas

Tangent and Cotangent Identities

$$\tan\theta = \frac{\sin\theta}{\cos\theta} \qquad \cot\theta = \frac{\cos\theta}{\sin\theta}$$

Reciprocal Identities

$$\sin\theta = \frac{1}{\csc\theta} \qquad \csc\theta = \frac{1}{\sin\theta}$$

$$\cos\theta = \frac{1}{\sec\theta} \qquad \sec\theta = \frac{1}{\cos\theta}$$

$$\tan\theta = \frac{1}{\cot\theta} \qquad \cot\theta = \frac{1}{\tan\theta}$$

Pythagorean Identities

$$\sin^2\theta + \cos^2\theta = 1$$

$$\tan^2\theta + 1 = \sec^2\theta$$

$$1 + \cot^2\theta = \csc^2\theta$$

Half Angle Formulas

$$\sin\theta = \pm\sqrt{\frac{1-\cos(2\theta)}{2}}$$

$$\cos\theta = \pm\sqrt{\frac{1+\cos(2\theta)}{2}}$$

$$\tan\theta = \pm\sqrt{\frac{1-\cos(2\theta)}{1+\cos(2\theta)}}$$

Sum and Difference Formulas

$$\sin(\alpha \pm \beta) = \sin\alpha\cos\beta \pm \cos\alpha\sin\beta$$

$$\cos(\alpha \pm \beta) = \cos\alpha\cos\beta \mp \sin\alpha\sin\beta$$

$$\tan(\alpha \pm \beta) = \frac{\tan\alpha \pm \tan\beta}{1 \mp \tan\alpha\tan\beta}$$

Product to Sum Formulas

Even and Odd Formulas

$\sin(-\theta) = -\sin\theta$ $\csc(-\theta) = -\csc\theta$

$\cos(-\theta) = \cos\theta$ $\sec(-\theta) = \sec\theta$

$\tan(-\theta) = -\tan\theta$ $\cot(-\theta) = -\cot\theta$

Periodic Formulas

If n is an integer

$\sin(\theta + 2\pi n) = \sin\theta$ $\csc(\theta + 2\pi n) = \csc\theta$

$\cos(\theta + 2\pi n) = \cos\theta$ $\sec(\theta + 2\pi n) = \sec\theta$

$\tan(\theta + \pi n) = \tan\theta$ $\cot(\theta + \pi n) = \cot\theta$

Double Angle Formulas

$$\sin(2\theta) = 2\sin\theta\cos\theta$$

$$\begin{aligned}\cos(2\theta) &= \cos^2\theta - \sin^2\theta \\ &= 2\cos^2\theta - 1 \\ &= 1 - 2\sin^2\theta\end{aligned}$$

$$\tan(2\theta) = \frac{2\tan\theta}{1 - \tan^2\theta}$$

Degrees to Radians Formulas

If x is an angle in degrees and t is an angle in radians then:

$$\frac{\pi}{180^\circ} = \frac{t}{x} \quad \Rightarrow \quad t = \frac{\pi x}{180^\circ} \text{ and } x = \frac{180^\circ t}{\pi}$$

$$\sin\alpha\sin\beta = \frac{1}{2}[\cos(\alpha - \beta) - \cos(\alpha + \beta)]$$

$$\cos\alpha\cos\beta = \frac{1}{2}[\cos(\alpha - \beta) + \cos(\alpha + \beta)]$$

$$\sin\alpha\cos\beta = \frac{1}{2}[\sin(\alpha + \beta) + \sin(\alpha - \beta)]$$

$$\cos\alpha\sin\beta = \frac{1}{2}[\sin(\alpha + \beta) - \sin(\alpha - \beta)]$$

Sum to Product Formulas

$$\sin\alpha + \sin\beta = 2\sin\left(\frac{\alpha+\beta}{2}\right)\cos\left(\frac{\alpha-\beta}{2}\right)$$

$$\sin\alpha - \sin\beta = 2\cos\left(\frac{\alpha+\beta}{2}\right)\sin\left(\frac{\alpha-\beta}{2}\right)$$

$$\cos\alpha + \cos\beta = 2\cos\left(\frac{\alpha+\beta}{2}\right)\cos\left(\frac{\alpha-\beta}{2}\right)$$

$$\cos\alpha - \cos\beta = -2\sin\left(\frac{\alpha+\beta}{2}\right)\sin\left(\frac{\alpha-\beta}{2}\right)$$

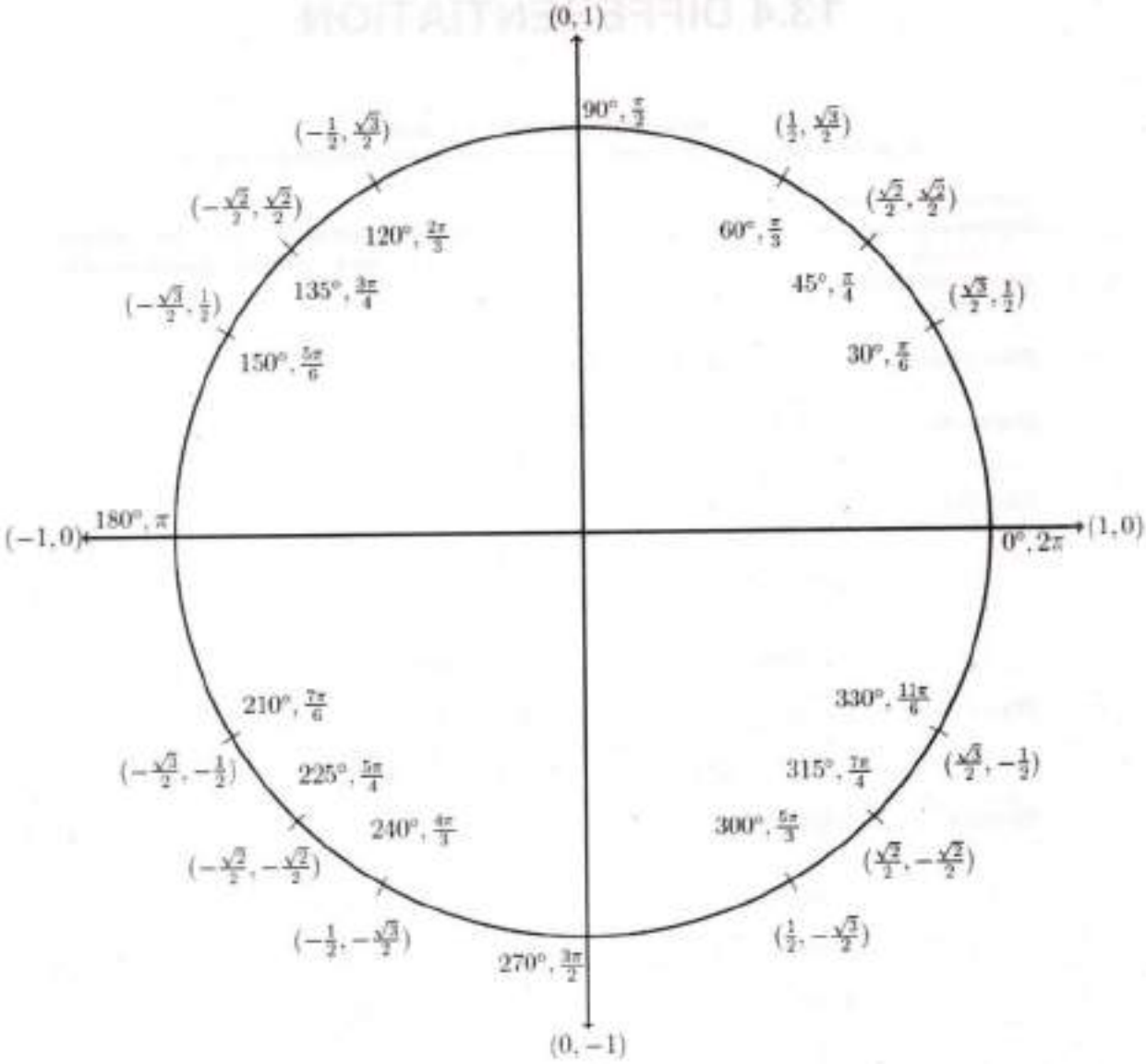
Cofunction Formulas

$\sin\left(\frac{\pi}{2} - \theta\right) = \cos\theta$ $\cos\left(\frac{\pi}{2} - \theta\right) = \sin\theta$

$\csc\left(\frac{\pi}{2} - \theta\right) = \sec\theta$ $\sec\left(\frac{\pi}{2} - \theta\right) = \csc\theta$

$\tan\left(\frac{\pi}{2} - \theta\right) = \cot\theta$ $\cot\left(\frac{\pi}{2} - \theta\right) = \tan\theta$

Unit Circle



For any ordered pair on the unit circle (x, y) : $\cos\theta = x$ *and* $\sin\theta = y$

Example

$$\cos\left(\frac{7\pi}{6}\right) = -\frac{\sqrt{3}}{2} \qquad \sin\left(\frac{7\pi}{6}\right) = -\frac{1}{2}$$

13.4 DIFFERENTIATION

Basic Differentiation Formulas

In the table below, $u = f(x)$ and $v = g(x)$ represent differentiable functions of x

Derivative of a constant	$\frac{dc}{dx} = 0$	
Derivative of constant multiple	$\frac{d}{dx}(cu) = c\frac{du}{dx}$	(We could also write $(cf)' = cf'$, and could use the "prime notion" in the other formulas as well)
Derivative of sum or difference	$\frac{d}{dx}(u \pm v) = \frac{du}{dx} \pm \frac{dv}{dx}$	
Product Rule	$\frac{d}{dx}(uv) = u\frac{dv}{dx} + v\frac{du}{dx}$	
Quotient Rule	$\frac{d}{dx}\left(\frac{u}{v}\right) = \frac{v\frac{du}{dx} - u\frac{dv}{dx}}{v^2}$	
Chain Rule	$\frac{dy}{dx} = \frac{dy}{du}\frac{du}{dx}$	

	$\frac{d}{dx}x^n = nx^{n-1}$	$\frac{d}{dx}u^n = nu^{n-1}\frac{du}{dx}$
	$\frac{d}{dx}a^x = (\ln a)a^x$	$\frac{d}{dx}a^u = (\ln a)a^u\frac{du}{dx}$
(If $a = e$)	$\frac{d}{dx}e^x = e^x$	$\frac{d}{dx}e^u = e^u\frac{du}{dx}$
	$\frac{d}{dx}\log_a x = \frac{1}{(\ln a)x}$	$\frac{d}{dx}\log_a u = \frac{1}{(\ln a)u}\frac{du}{dx}$
(If $a = e$)	$\frac{d}{dx}\ln x = \frac{1}{x}$	$\frac{d}{dx}\ln u = \frac{1}{u}\frac{du}{dx}$
	$\frac{d}{dx}\sin x = \cos x$	$\frac{d}{dx}\sin u = \cos u\frac{du}{dx}$
	$\frac{d}{dx}\cos x = -\sin x$	$\frac{d}{dx}\cos u = -\sin u\frac{du}{dx}$
	$\frac{d}{dx}\tan x = \sec^2 x$	$\frac{d}{dx}\tan u = \sec^2 u\frac{du}{dx}$
	$\frac{d}{dx}\cot x = -\csc^2 x$	$\frac{d}{dx}\cot u = -\csc^2 u\frac{du}{dx}$
	$\frac{d}{dx}\sec x = \sec x\tan x$	$\frac{d}{dx}\sec u = \sec u\tan u\frac{du}{dx}$
	$\frac{d}{dx}\csc x = -\csc x\cot x$	$\frac{d}{dx}\csc u = -\csc u\cot u\frac{du}{dx}$
	$\frac{d}{dx}\sin^{-1}x =$	$\frac{d}{dx}\sin^{-1}u =$
	$\frac{d}{dx}\arcsin x = \frac{1}{\sqrt{1-x^2}}$	$\frac{d}{dx}\arcsin u = \frac{1}{\sqrt{1-u^2}}\frac{du}{dx}$
	$\frac{d}{dx}\tan^{-1}x =$	$\frac{d}{dx}\tan^{-1}u =$
	$\frac{d}{dx}\arctan x = \frac{1}{1+x^2}$	$\frac{d}{dx}\arctan u = \frac{1}{1+u^2}\frac{du}{dx}$

13.5 DECISION MAKING

INTRODUCTION

Decision making carries a lot of importance in our daily life. There are occassions in our life when the right and the best decision help us tide over even the most complex of problems. Success of financial institutions like banks depends a great deal on timely decision.

Questions based on decision making have become a regular feature of most of the competitive examinations. Such questions are intended to check the decision making abilities, general intelligence, power of judgement and coordination and presence of mind of the candidates.

Here we deal with a few types of decision making tests.

TYPE -1

In this type of questions a symbol is given between two letters of the alphabet. You have to find out the meaning of each symbol by carefully studying the directions. In the questions that follow a statement is given which is followed by two conclusions. You have to find which of the conclusions logically follows the statement. Give answers as per the directions given.

Example :

Directions : In the following questions the symbols #, ", @, $ and = are used with the following meanings:

A # B means A is greater than B.

A " B means A is greater than or equal to B.

A @ B means A is equal to B.

A $ B means A is lesser than B.

A = B means A is lesser than or equal to B.

Now in each of the following questions, assuming the three statements to be true, find which of the two conclusions I and II given below them is/are true. Give answer.

1) if only conclusion I is true

2) if only conclusion II is true

3) if either conclusion I or conclusion II is true

4) if neither conclusion I nor conclusion II is true

5) if both conclusions I and II are true.

1. Statements : P # Q, R $ P, R " Q
   Conclusions : I. Q # R II. Q $ R
2. Statements : P = Q, T @ R, R # P
   Conclusions : I. T = Q II. Q "T
3. Statements : P @ Q, L @ M, P # L
   Conclusions : I. Q # M II. M $ P
4. Statements : P # M # L, L# N @ Q, Q $ S @ R
   Conclusions : I. R @ M II. L @ R
5. Statements : P " Q, Q @ T, T " L
   Conclusions : I. Q # L II. T # P

ANSWERS WITH EXPLANATIONS

1. 4; $P > Q, R < P, R \geq Q \Rightarrow Q \geq R$ or $Q \leq R$
2. 3; $P \leq Q, T = R, R > P \Rightarrow T \leq Q$ or $T \geq Q$
3. 5; $P = Q, L = M, P > L \Rightarrow Q > M$ and $M < P$
4. 4; $P > M > L; L > N = Q; \quad Q < S = R$
5. 4; $P \geq Q, Q = T$ and $T \geq L \Rightarrow Q \geq L$

SOLVED EXAMPLES

1. "@" means "≤", "Δ" means ">" and "$" means "=". If P @ Q, R Δ S and Q $ R, then which of the following statements is definitely true?

   1) R Δ P 2) P$Q
   3) P@R 4) P @ S
   5) None of these

Directions (Q. 2-6): In the following questions the symbols @, @̲, =, ©, and ©̲ are used with the following meaning:

P @ Q means P is greater than Q.

P @̲ Q means P is either greater than or equal to Q.

P = Q means P is equal to Q.

P © Q means P is smaller than Q.

P ©̲ Q means P is either smaller than or equal to Q.

Now in each of the following questions assuming the given statements to be true, find which of the two conclusions I and II given below them is/are definitely true? Give answer

1) if only conclusion I is true,
2) if only conclusion II is true,
3) if either I or II is true,
4) if neither 1 nor II is true, and
5) if both I and II are true.

2. **Statements** : B @ V K © C, C ©̲ B
   Conclusions: I. V @ C II. B @ K
3. **Statements** : K @ T, $ = K, T ©̲ R
   Conclusions : I. S @ R II. T = R
4. **Statements** : U = M, P @̲ U, M @ B
   Conclusions : I. P = B II. P @ B
5. **Statements** : L @̲ N, J ©̲ P, P @̲ L
   Conclusions : I. J = L II. P = N
6. **Statements** : H @̲ G, D @ E, H = E
   Conclusions : I. D @ H II. G © D

Directions (Q. 7-11): In the questions given below, certain symbols are used with the following meaning:

A @ B means A is greater than B.

A + B means A is either greater than or equal to B.

A # B means A is smaller than B

A ® B means A is either smaller than or equal to B.

A $ B means A is equal to B

Now in each of the following questions assuming the given statements to be true find which of the two conclusions I and II given below them is/are definitely true ? Give answer

1) if only conclusion I is true.
2) if only conclusion II is true,
3) if either I or II is true.
4) if neither I nor II is true.
5) if both I and II are true.

7. **Statements** : T $ G, K @ P, M # T, P + M
   Conclusions : I. K @ T II. G $ P
8. **Statements** : R + N, S ® B, A @ α, B $ A
   Conclusions : I. S $ N II. A @ N
9. **Statements** : G $ K, F @ J, K + Q, Q + F
   Conclusions : I. K $ F II. F # K
10. **Statements** : W @ S, K ® Z, U + W, S $ K
    Conclusions : I. U @ K II. Z @ S
11. **Statements** : G $ E, D # K, E # S, K × G
    Conclusions : I. S @ D II. D# E

Directions (Q. 12-16): In the following questions the symbol $, @, *, ** and # are used with the following meaning.

A $ B means A is greater than B

A @ B means A is either greater than or equal to B

A * B means A is equal to B

A ** B means A is smaller than B

A # B means A is either smaller than or equal to B

Now in each of the following questions assuming the given statements to be true, find which of the two conclusions I and II given below them is/are definitely True ? Give answer

1) if only conclusion I is true.
2) if only conclusion II is true.
3) if either I or II is true.
4) if neither I nor II is true.
5) if both I and II are true.

12. **Statements** : P @ Q, M # N, N**Q
    Conclusions : I. P $ M II. N # P
13. **Statements** : D**X, F @ Y, D $ F
    Conclusions : I. X @ Y II. Y # D
14. **Statements** : M**P, S $ T, M @ T
    Conclusions : I. S * M II. T ** P
15. **Statements** : U*V, X $ W, U**W
    Conclusions : I. W $ V II. U ** X
16. **Statements** : G $ H, J # K, H * K
    Conclusions : I. H $ J II. J * H

Directions (Q, 17-21): In the following questions the symbols $, @, *, # and ? are used with the following meanings.

A $ B means A is greater than B.

A @ B means A is either greater than or equal to B.

A * B means A is equal to B.

A # B means A is smaller than B.

A ? B means A is either smaller than or equal to B.

Now in each of the following questions assuming the given statements to be true, find which of the two conclusions I and II given below them is/are definitely True? Give answer.

1) If only conclusion I is true.
2) If only conclusion II is true.
3) If either I or II is true.
4) If neither I nor II is true.
5) If both I and II are true.

17. **Statements** : M # N, T $ U, N # U
Conclusions : I. M ? T II. T $ N
18. **Statements** : P $ T, G ? N, T @ N
Conclusions: I. P $N II. G ? T
19. **Statements** : P ? Q, R $ S, Q @ S
Conclusions : I. P $ S II. R # Q
20. **Statements** : J # K, K * F, H @ F
Conclusions : I. J ? H II. H$K
21. **Statements** : D @ F, G $ H, F ? H
Conclusions : I. G $ F II. D @ H

Directions (Q. 22-26): In the questions given below, certain symbols are used with the following meanings:

A @ B means A is greater than B.

A * B means A is either greater than or equal to B.

A # B means A is equal to B.

A $ B means A is either smaller than or equal to B.

A + B means A is smaller than B.

Now in each of the following questions, assuming the given statements to be true, find which of the two conclusions I and II given below them is/are definitely true? Give answer

1) if only conclusion I is true
2) if only conclusion II is true
3) if either conclusion I or II is true
4) if neither conclusion I nor II is true
5) if both conclusions I and II are true

22. **Statements** : B + D; E $ T; T * P; P @ B
Conclusions : I. P$D II. P@D
23. **Statements** : E * F; G $ H; H # E; G @ K
Conclusions : I. H@K II. H*F
24. **Statements** : P $ Q; N # M; M @ R; R * P
Conclusions : I. P+N II. Q$M
25. **Statements** : D + T; E $ V; F * T; E @ D
Conclusions : I. D$V II. D + F
26. **Statements** : T*U; U $ W; V @ L; W + V
Conclusions : I. V @ T II. L # W

Directions (Q. 27-31): In the following questions, the symbols +, ×, =, ÷, and - are used with the following meaning:

P ÷ Q means P is greater than Q.

P×Q means P is either greater than or equal to Q.

P = Q means P is equal to Q.

P ÷ Q means P is smaller than Q.

P-Q means P is either smaller than or equal to Q.

Now in each of the following questions assuming the given statements to be true, find which of the two conclusions I and II given below them is/are definitely true. Give answer

1) if only conclusion I is true.
2) if only conclusion II is true.
3) If either I or II is true.
4) If neither I nor II is true.
5) If both I and II are true.

27. **Statements** : U + V, W - Y, Y × U
Conclusions : I. W + U II. W ÷ V
28. **Statements** : B ÷ A, D × E, E + A
Conclusions : I. D + A II. B ÷ E
29. **Statements** : S × Q, R + T, R - S
Conclusions : I. S ÷ T II .Q = T
30. **Statements** : M ÷ N, P × Q, P + N
Conclusions : I. N + Q II. N - Q
31. **Statements** : G - H, K × L, L - G
Conclusions : I. G ÷ K II. L - H

Directions (Q. 32-36): In the following questions the symbols @, c, £, ? and $ are used with the following meanings:

A @ B means A is neither equal to nor smaller than B.

A c B means A is neither greater nor smaller than B.

A £ B means A is not equal to B.

A ? B means A is neither greater than nor equal to B.

A $ B means A is either greater or equal to B.

Now, in each of the following questions, assuming the given statements to be true, find which of the two conclusions I and II given below them is/are definitely true. Give answer

1) if only conclusion I is true
2) if only conclusion II is true
3) if either I or II is true
4) if neither I nor II is true
5) if both I and II are true

32. **Statements** : N ? S, S @ P, P £ M
Conclusions : **I.** S@M **II.** PcN
33. **Statements** : JcP, P$N, J£H
Conclusions : **I.** JcN **II.** H@P
34. **Statements** : Z @ D, F c D, F $ G
Conclusions : **I.** DcG **II.** Z@G
35. **Statements** : L @ T, P ? T, K$L
Conclusions : **I.** L@P **II.** K@T
36. **Statements** : R c U, U ? Q, W $ R
Conclusions : **I.** WcU **II.** W@U

Directions (Q. 37-41): In the following questions, certain symbols are used with the following meanings:

i) A # B means A is not greater than B.
ii) A $ B means A is neither smaller than nor equal to B.
iii) A ? B means A is neither greater than nor smaller than B.
iv) A * B means A is neither greater than nor equal to B.
v) A @ B means A is not smaller than B.

Now in each of the following questions, assuming the given statements to be true, find which of the two conclusions I and II given below them is/are definitely true. Give answer

1) if only conclusion I is true;
2) if only conclusion II is true;
3) if either I or II is true;
4) if neither I nor II is true; and
5) if both I and II are true.

37. **Statements** : P $ Q, R @ S, P * R
Conclusions : **I.** Q*R **II.** P # S
38. **Statements** : U $ V, W * X, U @ X
Conclusions : **I.** V@X **II.** V * X
39. **Statements** : K # T, D $ F, T * F
Conclusions : **I.** K*D **II.** D $ T
40. **Statements** : M$N, G@H, N?H
Conclusions : **I.** M@H **II.** M $ G
41. **Statements** : G@M, N#L, G*L
Conclusions : **I.** G@N **II.** L $ M

Directions (Q. 42-46): In the following questions, the symbols @, &, *, $ and ? are used with the following meanings:

P ? Q means P is either equal to or smaller than Q.

P $ Q means P is neither greater than nor smaller than Q.

P*Q means P is neither greater than nor equal to Q.

P @ Q means P is either greater than or equal to Q.

P & Q means P is not equal to Q.

Now in each of the following questions, assuming the given statements to be true, find which of the two conclusions I and II given below them is/are definitely true. Give answer

1) if only conclusion I is true;
2) if only conclusion II is true;
3) if either 1 or II is true;
4) if neither I nor II is true; and
5) if both I and II are true.

42. **Statements** : K$M, N&M, J@K
Conclusions : I : J ? M II: K $ N
43. **Statements** : K @ R, L & B, B ? K
Conclusions : I : B ? R II : R*L
44. **Statements** : J*M, W$E, J@W
Conclusions : I: M?W II : J ? E
45. **Statements** : R @ S, S ? U, T $ R
Conclusions : I : T$S II : T ? U
46. Statements : A*B, B ? C, C @ D
Conclusions : I : A$D II : B ? D

Directions (Q. 47-52): In the following questions the symbols +, *, ?, @ and $ are used with the following meanings:

P + Q means P is neither smaller nor greater than Q.

P × Q means P is neither equal to nor smaller than Q.

P ? Q means P is neither greater than nor equal to Q.

P @ Q means P is either greater than or equal to Q.

P $ Q means P is not equal to Q.

Now in each of the following questions assuming the given statements to be true, find which of the two conclusions I and II given below them is/are definitely true. Give answer

1) if only conclusion I is true;
2) if only conclusion II is true;
3) if either I or II is true;
4) if neither I nor II is true; and
5) if both I and II are true.

47. **Statements** : P$Q, Q×R, P + R
Conclusions : I. Q × P II. P ? Q
48. **Statements** : A + B, B $ C, C ? A
Conclusions : I. C $ A II. B+C
49. **Statements** : Y@Z, Z × Q, Q $ P
Conclusions : I. Y ? Q II. Y ? P
50. **Statements** : E × F, F @ L, L + N
Conclusions : I. N + F II. E × L
51. **Statements** : H@J, J ? K, K × M
Conclusions : I. H @ M II. M × J
52. **Statements** : M@T, T + V, V?E
Conclusions : I. V + M II. V ? M

Directions (Q. 53-57): In the following questions the symbols *, ×, $, @ and + are used with the following meaning:

'P×Q' means 'P is neither smaller nor greater than Q'.

'P @ Q' means 'P is neither equal to nor greater than Q'.

'P *Q' means 'P is either equal to or smaller than Q'.

'P + Q' means 'P is neither equal to nor smaller than Q'.

'P $ Q' means 'P is not equal to Q'.

Now in each of the following questions assuming the given statements to be true, find out which of the two conclusions I and II given below them is/are definitely true? Give answer

1) if only conclusion I is true.
2) if only conclusion II is true.
3) if either conclusion I or II is true
4) if neither conclusion I nor II is true
5) if both conclusions I and II are true.

53. **Statements** : D*F, F$M, M@K
Conclusions : I. F @ K II. D @ K
54. **Statements** : K + M, M@R, R × T
Conclusions : I. K + T II. T + M
55. **Statements** : T@M, M*R, R × N
Conclusions : I. M × N II. M @N
56. **Statements** : B $ N, N × R, R + T
Conclusions : I. B $ R II. T @ N
57. **Statements** : N × P, K + P, Q @ K
Conclusions : I. K + N II. Q + N

Directions (Q. 58-62): In the following questions, the symbols $, ©, ×, @ and # are used with the following meanings:

P $ Q means P is not smaller than Q.

P © Q means P is neither greater than nor smaller than Q.

P @ Q means P is not greater than Q.

P × Q means P is neither smaller than nor equal to Q.

P # Q means P is neither greater than nor equal to Q.

Now in each of the following questions, assuming the given statements to be true, find which of the two conclusions I and II given below them is/are definitely true. Give answer

1) if only conclusion I is true;
2) if only conclusion II is true;
3) if either I or II is true;
4) if neither I nor II is true; and
5) if both I and II are true.

58. **Statements** : Z$K, K × T, T©F
Conclusions : I. F # Z II. Z × T
59. **Statements** : K × B, B @ D, D # K
Conclusions : I. B @ K II. B # K
60. **Statements** : N©R, R@M, M$J
Conclusions : I. N © M II. N # M
61. **Statements** : S $ T, T@R, R # M
Conclusions : I. M × T II. M © T
62. **Statements** : H@V, V©M, M × R
Conclusions : I. R × H II. H × R

Directions (Q. 63-67): In the following questions, the symbol @, ©, *, $ and # are used with the following meaning:

'P @ Q' means 'P is neither smaller than nor equal to Q'.

'P © Q' means 'P is not smaller than Q'.

'P * Q' means 'P is not greater than Q'.

'P $ Q' means' P is neither smaller than nor greater than Q'.

'P # Q' means 'P is neither greater than nor equal to Q'.

Now in each of the following questions, assuming the given statements to be true, find which of the two conclusions I and II given below them is/are definitely true? Give answer

1) if only conclusion I is true.
2) if only conclusion II is true.
3) if either conclusion I or II is true.
4) if neither conclusion I nor II is true.
5) if both conclusions I and II are true.

63. **Statements** : Z#N, F©N, F*K
Conclusion : I. K $ N II. K @ Z
64. **Statements** : D $ T, T©M, M # K
Conclusions : I. M $ D II. D@ M
65. **Statements** : W©A,B*A,B@M
Conclusions : I. B # W II. W $ B
66. **Statements** : J * M, M $ N, N # T
Conclusions : I. T @ J II. T $ J
61 **Statements** : V * F, F @ R, R © G
Conclusions : I. G # V II. G@ V

Directions (Q 68-75): In the questions given below, certain symbols are used with the following meanings:

P $ Q means P is neither equal to nor smaller than Q.

P © Q means P is not smaller than Q.

P * Q means P is neither greater nor smaller than Q.

P # Q means P is neither greater than nor equal to Q.

P @ Q means P is not greater than Q.

Now in each of the following questions, assuming the given statements to be true, find which of the two conclusions I and II given below them is/are definitely true. Give answer

1) if only conclusion I is true.
2) if only conclusion II is true.
3) If either conclusion I or II is true.
4) if neither conclusion I nor II is true.
5) if both conclusions I and II are true.

68. **Statement** : M#K, K*D, D@P
Conclusions : I. M @ P II. M *P
69. **Statements** : I. W©T, T$M, B#M
Conclusions : I. W $ B II. M # W
70. **Statements** : H*D, D#R, R©N
Conclusions : I. N * H II. N$H
71. **Statements** : Z@R, R©D, D#T
Conclusions : I. D # Z II. Z # T
72. **Statement** : Q#P, P@F, F*M
Conclusions : I. M $ P II. P * M
73. **Statements** : E$J, J#H, H©M
Conclusions : I. E $ M II. J $ M
74. **Statements** : R©P, P$M, M@D
Conclusions : I. D $ R II. M # R
75. **Statements**: F#K, K©D, N@D
Conclusions: I. N * K II. N # K

ANSWERS AND EXPLANATIONS

1.3: $P \leq Q$ .....(i), $R > S$.... (ii), $Q = R$ ..... (iii)
Combining all, we get $P \leq Q = R > S \Rightarrow$ no relationship between P and S can be established. Hence (4) is not true.
From (i) and (in), we get $P \leq Q = R \Rightarrow P \leq R$. Hence (3) is definitely true.
(1) and (2) may be true but not necessarily so.

2.2: $B > V$...(i); $K < C$... (ii); $C \leq B$ .... (iii)
No relationship can be found out between V and C. Hence I does not follow.
From (ii) and (iii), $B > K$. Hence II follows.

3.4: $K > T$ .. (i) ; $S = K$....(ii); $T \leq R$....(iii)
Neither relationship can be established.

4.3: $U = M$....(i); $P \geq U$..(ii); $M \geq B$....(iii)
Combining, we get $P \geq U = M \geq B \Rightarrow P \geq B \Rightarrow P = B$ or $P > B$

5.4: $L \geq N$ ..... (i); $J \leq P$ .... (ii); $P \geq L$ ..... (iii)
Neither relationship can be established.

6.5: $H \geq G$....(i); $D > E$.... (ii); $H = E$ ....(iii)
Combining, weget $D > E = H \geq G \Rightarrow D > H$ and $G < D$

7.4 8.2 9.3 10. 1

11.5: $G = E$ ..... (i); $D < K$ ..... (ii); $E < S$ ..... (iii) $K \leq G$ ..... (iv)
Combining these, weget $D < K \leq G = E < S$. Clearly, both conclusions I and II follow.

12.1: $P \geq Q$...(i), $M \leq N$...(ii), $N < Q$ ... (iii)
Combining all these, we get
$P \geq Q > N \geq M \Rightarrow P > M$. Hence I follows.
From (i) and (iii), $P \geq Q > N \Rightarrow P > N$. Hence II is false.

13. 4; $D < X$ ... (i), $F \geq Y$ ... (ii), $D > F$ ... (iii)
From (ii) and (iii), $D > F \geq Y$...(iv) $\Rightarrow D > Y$. Hence II may be correct but not necessarily so.
From (i) and (iv), $X > D > F \geq Y \Rightarrow X > Y$. Hence I may be correct but not necessarily so.

14.2 15.5 16.3

17.2; $M < N$...(i), $T > U$ ... (ii); $N < U$... (iii)
Combining these, we get $M < N < U < T$
Hence $M < T$ and $T > N$.

18.5; $P > T$. .. (i); $G \leq N$...(ii), $T \geq N$..... (iii)
From (i) and (iii), $P > N$
From (ii) and (iii), $G \leq T$.

19.4 $P \leq Q$ .... (i); $R > S$ ..... (ii); $Q \geq S$ ..... (iii)
Thus the relationships can't be established.

20.4; $J < K$... (i); $K = F$...(ii); $H \geq F$. .. (iii)
Combining these, we get $J < K = F \leq H$
So, $J < H$. Thus I does not follow.
Again, $H \geq K$. Thus II does not necessarily follow.

21.1; $D \geq F$.... (i); $G > H$ ..... (ii) $F \leq H$ .... (iii)
From (ii) and (iii), $G > F$. Hence I follows.
But II can't be established.

22.3; $B < D$ .... (i), $E \leq T$ ..... (ii), $T \geq P$ ....(iii), $P > B$.... (iv)
From (i) and (iv), we get, $P > B < D \Rightarrow$ no conclusion. But the exhaustive possibilities are $P > D$, $P = D$ and $P < D$. Hence either I or II is true.

23.5; $E \geq F$ .... (i), $G \leq H$ .... (ii), $H = E$ ..... (iii), $G > K$ ..... (iv)
From (ii) & (iv), we get, $H \geq G > K \Rightarrow H > K$. Hence I is true.
From (i) & (iii), we get, $H = E \geq F \Rightarrow H \geq F$. Hence II is true.

24.1; $P \leq Q$... (i), $N = M$... (ii), $M > R$... (iii), $R \geq P$... (iv)
From (ii), (iii) & (iv), we get, $N = M > R \geq P \Rightarrow N > P$ or $P < N$. Hence I true.
From (iii), (iv) and (i), we get, $M > R \geq P \leq Q \Rightarrow$ No conclusion about the relationship between M and Q can be established.

25.2 26.4

27.4; $U > V$ .... (i), $W \leq Y$ .... (ii), $Y \geq U$ ..... (iii)
From (ii) and (iii), $W \leq Y \geq U \Rightarrow$ No relationship between W and U can be determined. Hence I is not true. Now, using (i), again no relationship between W and V can be determined.

28.5; B< A.... (i), D ≥ E .... (ii), E > A ..... (iii)
From (ii) & (iii), we get D ≥ E >A ⇒ D > A. Hencen I is true.
From (i) and (iii), we get B < A < E ⇒ B < E. Hence II is true.

29.1; S ≥ Q ... (i), R> T ... (ii), R ≤ S ... (iii)
Combining all, we get, Q ≤ S ≥ R>T ⇒ No relationship between Q and T can be determined. Hence II is not true. But S > T. Hence I is true.

30.3; M < N ..... (i), P ≥ Q ..... (ii), P > N ..... (iii)
From (ii) and (iii), we get N < P ≥ Q ⇒ No relationship between N and Q can be established. But I and II together are exhaustive. Hence either I or II is true.

31.2; G ≤ H...(i), K ≥ L...(ii), L< G...(iii)
From (ii) and (iii), we get, K ≥ L ≤ G ⇒ I can't be established.
From (i) & (iii), we get, L ≤ G ≤ H ⇒ L ≤ H. Hence II is true.

(32-36): In these questions the negative meaning of these symbols is given to establish the relation between A and B, which can be easily converted to its simple and positive meaning. Expressing them mathematically, we get @ → > (greater than), c → = (equal to), £ → ≠ (means either greater than or smaller than, but no definite conclusion), ? → < (smaller than), and $ → ≥.

32. 4; N < S ... (i), S > P ... (ii), P ≠ M ... (iii)
From (ii) and (iii), no definite relationship between S and M can be established. Hence I is not true. From (i) and (ii), we get, N < S > P ⇒ no conclusion. Hence II is not true.

33. 4; J = P ... (i), P ≥ N ... (ii), J ≠ H ... (iii)
From (i) and (ii), we get, J = P ≥ N ⇒ J ≥ N ⇒ I may be true but not necessarily so.
From (i) and (iii), P = J ≠ H ⇒ P ≠ H. Hence again II may be true but H < P may be other possibility. Hence II is not true.

34.2 35.5 36.3

37.1; P > Q ..... (i) R ≥ S ..... (ii), P < R ..... (iii)
From (i) & (iii), we get R > P > Q ⇒ R > Q or, Q < R. Hence I is true.
From (ii) and (iii), we get P < R ≥ S ⇒ no conclusion. Hence II is not true.

38.3; U >V .... (i), W < X ..... (ii) , U ≥ X ..... (iii)
From (i) and (iii), we get V< U ≥ X ⇒ no conclusion, means either V > X, or V = X, or V < X. Hence either I or II is true.

39. 5; K ≤ T ... (i), D > F ...(ii), T < F ...(iii)
From (ii) and (iii), we get D > F >T ⇒ D >T. Hence II is true.
From II & (i), we get, D >T ≥ K ⇒ D >K or K < D. Hence I is true.

40.4

41.2; G ≥ M..(i), N ≥ L...(ii) G < L .... (iii)
From (ii) and (iii), we get G < L ≥ N ⇒ no conclusions. Hence I is false.
From (i) & (iii), we get L > G ≥ M ⇒ L > M. Hence II is true.

42.4

43. 4; K ≥ R...(i), L ≠ B...(ii),B ≤ K,...(iii)
From (iii) and (i), we get B ≤ K ≥ R ⇒ no conclusion. Hence I does not follow. No relationship between R and L can be determined. Hence II does not follow.

44. 4; J < M ...(i), W = E ...(ii), J ≥ W ...(iii)
From (i) and (iii), we get M> J ≥ W ⇒ M> W. Hence I is not true.
From (ii) and (iii), we get J ≥ W=E ⇒ J ≥ E. Hence II is not true.

45.4 46.4

47.5; P # Q .... (i), Q > R ..... (ii), P = R .... (iii)
From (ii) and (iii), we get Q > R = P ⇒ Q > P. Hence both I and II are true.

48.1; A = B ..... (i) B ≠ C ..... (ii), C < A ..... (iii)
From (iii), conclusion I is true. II contradicts statement (ii), hence it is not true.

49. 4; Y ≥ Z ...(i), Z > Q ... (ii), Q ≠ P ...(iii)
From (i) and (ii), we get Y ≥ Z > Q ⇒ Y > Q ... (A) Hence I is not true. From (iii), two possible relationships between P and Q are:
Case I : When P > Q
Now, using (A), we get Y >Q<P ⇒ no conclusion.
Case II : When Q > P
using (A), we get Y > Q > P ⇒ Y > P. Hence II is not true.

50.2; $E > F$ .... (i) $F \geq L$ .... (ii), $L = N$ .... (iii)
From (ii) & (iii), we get $F \geq L = N \Rightarrow F \geq N$ or $N \leq F$.
Hence I may be true but not necessarily so.
From (i) and (ii), we get $E > F \geq L \Rightarrow E > L$
Hence II is true.

5 1.4; $H \geq J$...(i), $J < K$... (ii), $K > M$....(iii)
From (ii) and (iii), we get $J < K > M \Rightarrow$ no relationship between J and M can be established. Hence II can't be established. Again, combining all we can't conclude the relationship between H and M. Hence I is not true.

52.3; $M \geq T$ ... (i), $T = V$....(ii), $V < E$ ... (iii)
From (i) and (ii), we get
$M \geq T = V \Rightarrow M \geq V \Rightarrow$ either $V = M$ or $V < M$ is true.

53.4 54.2 55.3 56.5 57.1 58.5

59.2; $K > B$ .... (i), $B \leq D$ ..... (ii), $D < K$ .... (iii)
From (i), $B < K$. Hence II is true but I is not true.

60. 3; $N = R$ ... (i), $R \leq M$ ... (ii), $M \geq J$ ... (iii)
From (i) and (ii), we get $N = R \leq M \Rightarrow N \leq M$. Hence either I or II is true.

61.1; $S \geq T$ ..... (i), $T \leq R$..... (ii), $R < M$ ..... (iii)
From (ii) & (Hi), we get $T \leq R < M \Rightarrow T < M$ or $M > T$. Hence I is true and II is not true.

62. 4; $H \leq V$ ... (i), $V = M$ ... (ii), $M > R$ ... (iii)
Combining all, we get $H \leq V = M > R \Rightarrow$ no relationship between H and R can be established. Since conclusions I and II are not exhaustive, neither of them is true.

63.2; $Z < N$ ..... (i); $F \geq N$ ..... (ii) ; $F \leq K$ ..... (iii)
Combining all, we get
$K \geq F \geq N > Z \Rightarrow K \geq N$ and $K > Z$
Hence, conclusion I ($K = N$) is not necessarily true but conclusion II ($K > Z$) is true.

64. 3; $D = T$ ...(i); $T \geq M$ ...(ii); $M < K$ ...(iii)
Combining (i) and (ii), we get
$D = T \geq M \Rightarrow D \geq M \Rightarrow D = M$ or $D > M$
Hence, either conclusion I ($M = D$) or conclusion II ($D > M$) is true.

65. 3; $W \geq A$ ... (i); $B \leq A$ ...(ii); $B > M$ ...(iii)
Combining all, we get
$W \geq A \geq B > M \Rightarrow B \leq W$
$\Rightarrow B < W$ or $B = W$
Hence, either conclusion I or II is true.

66. 1; $J \leq M$ .... (i); $M = N$....(ii); $N < T$....(iii)
Combining all, we get
$J \leq M = N < T \Rightarrow T > J$
Hence, only conclusion I is true

67. 4; $V \leq F$ ....(i); $F > R$ ....(ii); $R \geq G$ ....(iii)
Combining (ii) and (iii), we get $F > R \geq G$ ....(iv) Comparing (i) and (iv), we can't get any specific relationship between G and V. Hence, both conclusions are not true.

68. 4; $M < K$ ... (i); $K = D$... (ii); $D \leq P$... (iii)
Combining all the equations, we get
$P \geq D = K > M \Rightarrow P > M$. Hence, condusion I ($M \leq P$) & conclusion II ($M = P$) are not true.

69.5; $W \geq T$..... (i); $T > M$ ..... (ii); $B < M$ ..... (iii)
Combining all, we get $W \geq T > M > B$
$\Rightarrow W > B$ and $W > M$. Hence, both conclusions ($W > B$, $M < W$) are true.

70. 4; $H = D$ ... (i); $D < R$ ... (ii) $R \geq N$ .... (iii)
Combining (i) and (ii), we get
$R > H = D$ ... (iv)
From (iii) and (iv), we cann't get any specific relation between N and H. Therefore, conclusion I ($N = H$) and conclusion II ($N > H$) are not true.

71.4; $Z \leq R$...(i); $R \geq D$...(ii); $D < T$...(iii)
With these equations no relation can be established between D and Z, and Z and T.

72. 3; $Q < P$ ... (i); $P \leq F$ ... (ii); $F = M$ ... (iii)
Combining all the equations, we get
$F = M \geq P > Q \Rightarrow M \geq P$, ie $M > P$ or $M = P$.
Hence, either conclusion I or II is true.

73. 4; $E > J$ ... (i); $J < H$ ... (ii); $H \geq M$ ... (iii)
No relation can be established between E and M or between J and M. Hence, conclusion I ($E > M$) and conclusion II ($J > M$) are not true.

74. 2; $R \geq P$ ... (i); $P > M$ ... (ii); $M \leq D$... (iii)
Combining (i) & (ii), we get $R \geq P > M$...(iv). From conclusion (iv), we get $R > M$. Hence, conclusion II ($M < R$) is true. But we can't get any specific relation between D and R. Therefore conclusion I is not true.

75.3; $F < K$ ..... (i); $K \geq D$ .... (ii); $N \leq D$ ..... (iii)
Combining the equations (ii) and (iii), we get
$K \geq D \geq N \Rightarrow K \geq N$, i.e. $K > N$ or $K = N$.
Hence, either conclusion I or conclusion II is true.