



**D. S. GOVERNMENT COLLEGE FOR WOMEN, ONGOLE.
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NAAC 3rd CYCLE ACCREDITATION

CRITERIA I CURRICULUM PLANNING AND DELIVERY

1.1 .1 EFFECTIVE CURRICULUM PLANNING AND DELIVERY ASSIGNMENTS

Assignment

Botany

Ch. Geethika...

IV sem. Bzc...



Assignment - 1

Cell Membrane (or) plasma membrane.

The plasma membrane is present below the cell wall in plants.

The protoplasm is bounded on its outer surface by plasma membrane.

It was first discovered by Overton.

The plasma membrane is about $75-80 \text{ \AA}^{\circ}$ in thickness.

Chemical composition

The plasma membrane contains lipids, proteins in larger amount and carbohydrates in lesser amount.

1. Proteins -

The proteins present along with carbohydrates in plasma membrane are known as glycoproteins.

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The proteins present along with carbohydrates in plasma membrane are known as glycoproteins. The proteins are of 2 types.

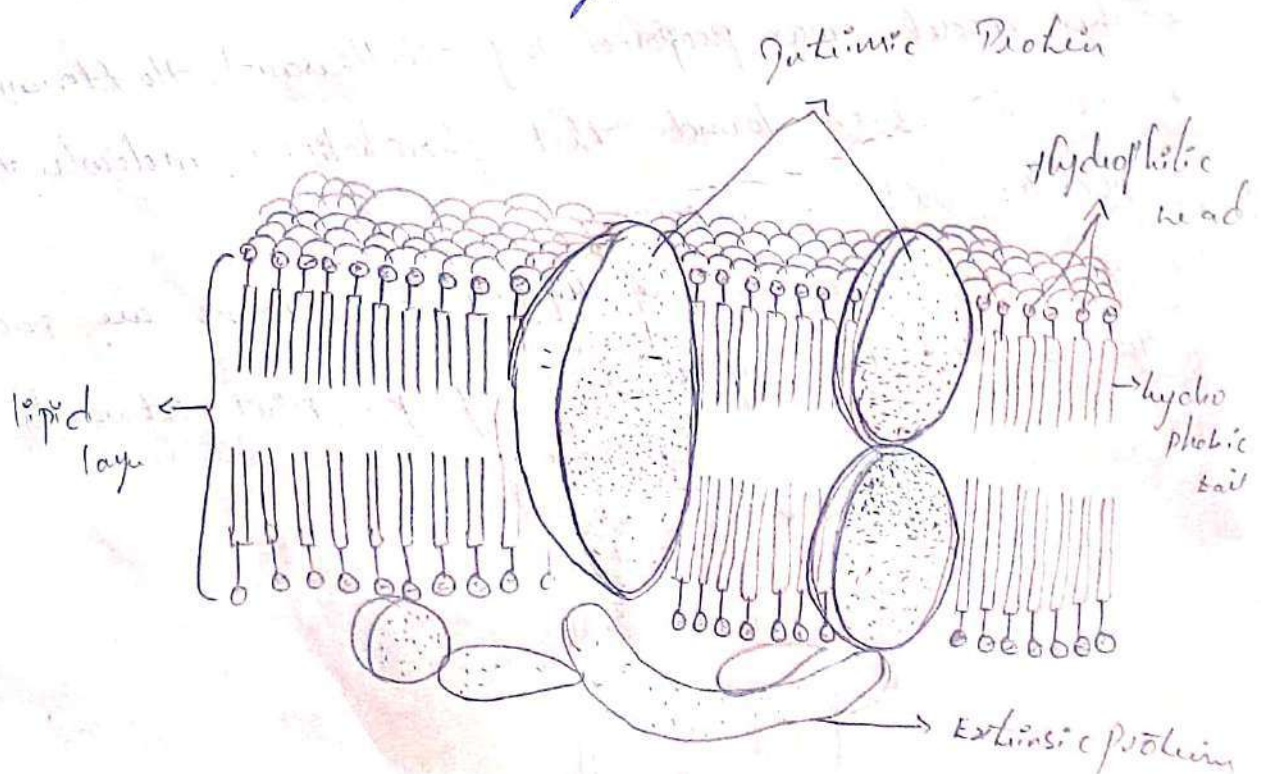
They are 1) peripheral proteins 2) Integral proteins

* They are proteins that are loosely associated with

the lipid molecules are known as peripheral proteins.

d) Fluid Mosaic Model:

- * This model was proposed by Singer and Nicolson in 1972.
- * It is the widely accepted model now.
- * This model assumes that there is a continuous bilayer of phospholipid molecules in which are embedded globular proteins.
- * The proteins have been compared to icebergs floating in a sea of the phospholipid bilayer.
- * The globular proteins of the membrane are considered to be of 2 different types, extrinsic proteins and intrinsic proteins.
- * The peripheral proteins are soluble and readily dissociate from the membrane.
- * The integral proteins are relatively insoluble and dissociate with difficulty.



Functions

1. The plasma membrane is selectively permeable. It regulates the movement of materials across it.
2. Plasma membrane provides rigidity and protection to the cell.
3. ~~Active transport~~ : Active transport requires energy. It helps in the transport of molecules.
4. ~~Passive transport~~ : Transport of molecules takes place along the concentration gradient and no energy is required.
5. ~~Endocytosis~~ : Endocytosis is the process by which material is transported into cells by formation of vesicles.
It includes two processes.
5. ~~Phagocytosis~~ : It is the bulk ingestion of solid food into the cell.
5. ~~Pinoctosis~~ : It refers to the ingestion of fluid material.

~~End~~

Assignment - 2

Organization of DNA in the chromosome.

- * Previously it was suggested that four parallel-DNA-histone fibres are associated to form the chromatid of a chromosome (Fin, 1966).
- * Although multiple stranded concept has been demonstrated in many plant species like *Vicia faba* and others, there is also evidence against it to generalize the concept.
- * Electron microscopic studies have revealed that a single long chain of DNA molecule of eum with H₁ protein is associated in the formation of each chromatid.
- * This was confirmed by electrophoretic studies in yeast *Saccharomyces cerevisiae*.
- * The single stranded DNA is present in much coiled folded pattern.
- * A number of models have been put forth to explain the pattern of coiling and folding of DNA in the chromosomes.
- * One such model called nucleosome model proposed by R.D. Kornberg (1974) and named by Oudet (1975) is universally accepted.

* These two (2) turns are tightly held by the histone protein.

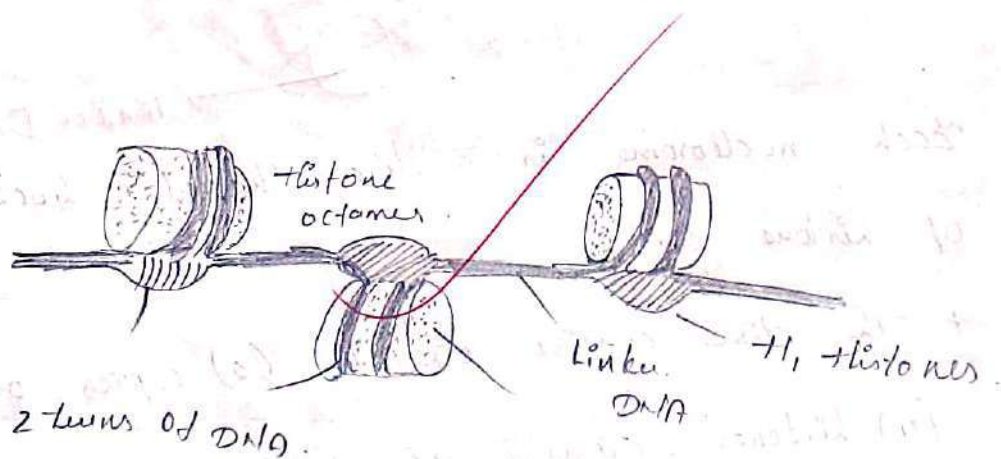
* The two turns of DNA which wound the disc, generally contains 146 nitrogenous base pairs.

* The DNA extends as a continuous thread from one nucleosome to another nucleosome.

* The DNA strand connecting the adjacent nucleosomes is called as linker DNA.

* The linker DNA is generally of 54 nitrogenous base pairs.

* Thus for nearly every 200 nitrogenous base pairs of nucleotides a nucleosome is repeated.



Solenoid Model -

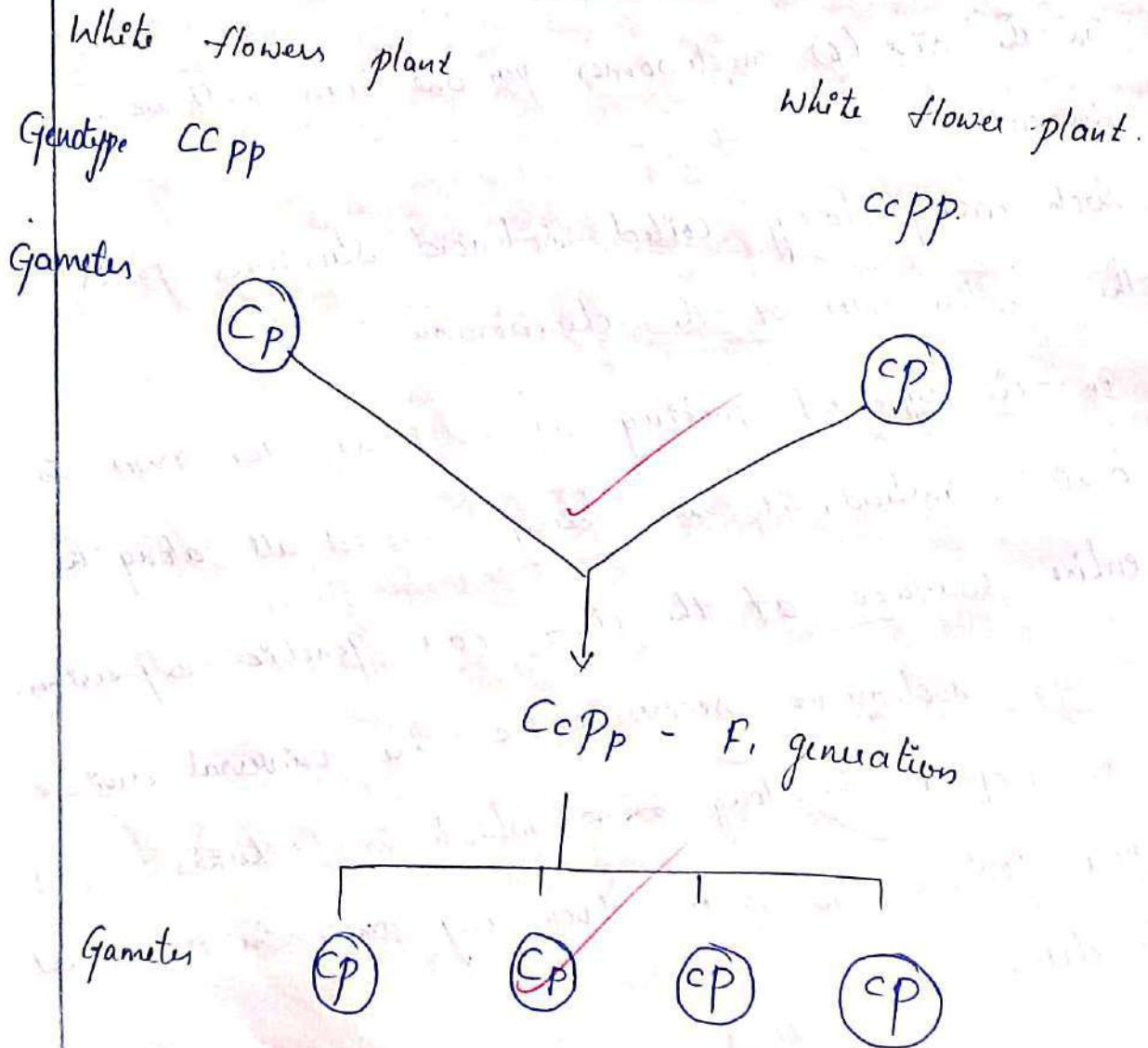
- * In Metaphase and interphase nuclei the much coiled chromatin is in the form of fiber which is 30nm in diameter.
- * This fiber consists of closely packed nucleosomes.
- * It arises from the folding of nucleosome containing chromatin chain into much more coiled structure called solenoid structure.
- * In the size (6) nucleosomes per one turn will be present.
- * Such many closely coiled solenoid structures pack the entire DNA of the chromosome.
- * In this type of packing at no point the DNA is buried, instead, it is freely exposed all along the entire surface of the disc for genetic expression.
- * Thus nucleosome seems to be the universal device to compact the long DNA, which is otherwise just not possible to pack such long DNA in a small nucleus.

JAO

Assignment - 3.

Complementary Genes

- It can be defined as two or more dominant genes present on separate gene loci, which interact to produce a particular trait, but neither of them produces the phenotypic trait in the absence of other.



♀ \ ♂	CP	Cp	cP	cp
CP	CCPP pink	CCPp pink	CcPP pink	CcPp pink
Cp	CCPp pink	CCpp white	CcPp pink	Ccpp white
cP	CcPP pink	CcPp pink	ccPP white	ccPp white
cp	CcPp pink	Ccpp white	ccPp white	ccpp white

9:7 Ratio.

9:3:3:1

When two white coloured flowers of *Lathyrus odoratus* were crossed the F_1 produced purple flowers.

- These purple individuals of F_1 when self pollinated produced purple and white in the ratio of 9:7 in F_2 .

- In this the purple colour of flowers is dependent on two complementary gene C and P, C is responsible for one parent with white colour and P is for other parent with white colour.