

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 1373

I

Unique Paper Code : 2162011102

**Name of the Paper : Cell Biology : Organelles
and Biomolecules**

Name of the Course : Botany

Semester : I

Duration : 2 Hours

Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Question No. 1 is compulsory.
3. Attempt **four** questions in all.
4. Attempt **all** the parts of a question together.

1. (a) Write at least one contribution of the following scientists (Attempt any **five**) : (1×5=5)

(i) Maurice Wilkins

(ii) Singer and Nicolson

(iii) Robert Brown

(iv) Fritz Lipmann

P.T.O.

(v) Gunter Blobel and David Sabatini

(vi) George Palade

(b) State whether the following statements are true or false (any ten) ($\frac{1}{2} \times 10 = 5$)

- (i) Tertiary structure of proteins involves more than one polypeptide.
- (ii) Sucrose is a disaccharide and has alpha (1-4) bond.
- (iii) Nucleus communicates with the cytoplasm through nucleopores.
- (iv) Cell membranes are composed of amylose and amylopectin.
- (v) Cellulose form the lipid component of the cell walls.
- (vi) Phosphodiglycerides are a part of cell membranes.
- (vii) Golgi bodies are seat of N-glycosylation of lipids.
- (viii) Cholesterol is major constituent of plant cell membrane.
- (ix) Pectin is a constituent of bacterial cell wall.
- (x) Phosphodiester bonds link nitrogenous bases to sugars.
- (xi) Ribosomes are single membrane bound organelles.

(xii) Lysosome helps in protein folding.

(c) Fill in the blanks (Attempt any **five**): (1×5=5)

- (i) amino acid participates in the formation of disulphide bonds.
- (ii) Enzymes for oxidative phosphorylation are present on the of mitochondria.
- (iii) The reticular network which traverses the cytoplasm is known as
- (iv) Digestion of old cell organelles like mitochondria is called
- (v) The stage at which crossing over of chromosomes takes place during meiosis I is called.....
- (vi) Hydrophobic proteins tend to have structure

2. Differentiate between any **three**: (5×3=15)

- (a) B DNA and Z DNA
- (b) Microfilament and Intermediate Filament
- (c) Primary, Secondary and Tertiary Lysosome
- (d) Heterchromatin and Euchromatin

3. Write short notes on any **three**: (5×3=15)

- (a) Semiautonomous Organelles

P.T.O.

- (b) Cell Wall
- (c) Biological Significance of Hydrogen Bonds
- (d) Structure and Function of ATP

4. Draw well labelled ultrastructure of any **three** :
(5×3=15)

- (a) Fluid mosaic model
- (b) Chloroplast
- (c) Nuclear Pore complex
- (d) Flagella

5. (a) Garbage disposal or suicidal bags is a popular expression for one of the cell organelle. Name the organelle and comment on its function.

(b) Golgi apparatus is the export house of the cell. Comment.

(c) Explain the process of regulation of cell cycle in eukaryotes.
(5×3=15)

6. (a) What is the role of mitosis in living organisms.

(b) What is the importance of protein glycosylation and where does it take place?

(c) Write an account of structure and function of nucleolus.
(5×3=15)

(1200)