13.12.18 (M)

This question paper contains 4 printed pages]

Roll No. | | | | | | | | | | | |

S. No. of Question Paper : 33

Unique Paper Code : 32161102 I

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

Name of the Course : **B.Sc. (Hons.) Botany**

Semester : I

Duration : **3 Hours** Maximum Marks : **75**

(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt *five* questions in all, including question No.. **1** which is compulsory. *All* parts of questions must be attempted together.

1. (*a*) Name the organelle in which the following enzymes are located : 5×1=5

(*i*) Cytochrome oxidase

(*ii*) Catalase

(*iii*) Acid phosphatase

(*iv*) Signal peptidases

(*v*) Rubisco.

P.T.O.

(*b*) Match the following : 5×1=5

'A'	'B'
(*i*) Polysaccharide	*r*RNA transcription
(*ii*) Nucleolus	Tubulin
(*iii*) Gaucher's disease	Chloroplast
(*iv*) Endosymbiont	Lysosome
(*v*) Microtubule	Glycogen.

(*c*) State true *or* false : 5×1=5

(*i*) Solid particles are ingested by pinocytosis.

(*ii*) Cellulose is a kind of polysaccharide.

(*iii*) Lipids in cell membranes are amphipathic.

(*iv*) Plasmids are extrachrosomal DNA present in all eukaryotic cells.

(*v*) Nucleolus is a membrane bound structure.

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

(*i*) Facultative heterochromatin and constitutive heterochromatin.

(*ii*) Mitosis and Meiosis.

(*iii*) Endocytosis and Exocytosis

(*iv*) Lysosome and Glyoxysome

(*v*) DNA and RNA.

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

(*i*) Biological role of proteins

(*ii*) Semiautonomous nature of mitochondria

(*iii*) Glycosylation

(*iv*) Structure of Flagella.

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

(*i*) Ultrastructure of chloroplast

(*ii*) Double helical structure of DNA

(*iii*) Nuclear Pore Complex

(*iv*) Structure of *t*RNA

5. (*a*) Describe the structure, composition and function of cell wall.

(*b*) Describe the structure and functions of microtubules.

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

3×5=15

P.T.O.

6. (*a*) Discuss the molecular organization of chromatin.

(*b*) Discuss the role of endoplasmic reticulum in folding and processing of proteins.

(*c*) Explain the structure and function of mitochondria.

3×5=15