This question paper contains 4+1 printed pages]

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

S. No. of Question Paper : 7777

Unique Paper Code : **2161102** **F-1**

Name of the Paper : **Plant Cell Biology [DC-1.2]**

Name of the Course : **Bachelor with Honours**

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.

Question No. 1 is compulsory.

All parts of a question should be answered together.

Draw well-labelled diagrams wherever necessary.

1. (*a*) Expand any *five* of the following : 5

(*i*) GERL

(*ii*) MTOC

(*iii*) SER

(*iv*) NOR

(*v*) TEM

(*vi*) TGN.

P.T.O.

(*b*) Fill in the blanks. Attempt any *five* of the following : 5

(*i*) ..... is the energy currency of the cell.

(*ii*) The cytoplasmic connections between plant cells are called ..... .

(*iii*) The organelle where photosynthesis occurs is ..... .

(*iv*) The basic unit of chromatin structure is called ..... .

(*v*) The shrinkage of protoplasts of plant cells when placed in a hypertonic solution is called ..... .

(*vi*) The site of attachment of spindle fibers to the chromosome is called ..... .

(*c*) Match the following : 5

(*i*)	Light reaction	(*a*)	Tubulin
(*ii*)	Cell plate	(*b*)	Chloroplast
(*iii*)	Microtubule	(*c*)	Bacteria
(*iv*)	Nucleoid	(*d*)	Unit membrane model
(*v*)	Robertson	(*e*)	Golgi apparatus

2. Write short notes on any *three* of the following : 3×5=15

(*i*) Cell cycle

(*ii*) Nucleolus

(*iii*) Cytokinesis in plant cells

(*iv*) Lysosomes.

3. Differentiate between any *three* of the following : 3×5=15

(*i*) Prokaryotic and Eukaryotic cells

(*ii*) Active and passive transport

(*iii*) Primary and secondary cell walls

(*iv*) Microtubules and microfilaments.

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

(*i*) Endomembrane system in the cell showing vesicular transport

(*ii*) Nuclear pore complex

(*iii*) Ultrastructure of mitochondrion

(*iv*) T.S. of a cilium.

P.T.O.

5. Discuss any *three* of the following : 3×5=15

(*i*) Fluid-Mosaic Model

(*ii*) Endosymbiotic Theory

(*iii*) Nucleosomes

(*iv*) Cell theory.

6. Attempt any *two* of the following : 2×7.5=15

(*i*) Give a detailed account on the structure and functions of RER

(*ii*) With the help of diagrams only, show the behavior of a single pair of chromosome during different stages of prophase of meiosis I. Explain the significance of meiosis.

(*iii*) Explain the following :

(*a*) Facilitated diffusion

(*b*) Types of chromatin

(*c*) Synaptonemal complex.

7. (*a*) State whether True *or* False : 5×1=5

(*i*) Plant vacuoles are double membrane organelles.

(*ii*) Glyoxysomes are present in the cells of oil-storing seeds.

(*iii*) Cellulose is a kind of heteropolysaccharide.

(*iv*) RUBISCO is present in mitochondria.

(*v*) Lipids in the cell membrane are amphipathic molecules.

(*b*) Answer the following : 5×2=10

(*i*) What is the role of peroxisomes in the detoxification process ?

(*ii*) How does colchicine prevent chromosome movements during cell division ?

(*iii*) Why are biological membranes fluid in nature ?

(*iv*) A cell without its nucleolus would not be able to survive. Explain.

(*v*) How do chloroplasts resemble bacteria ?