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BOTANY

(Major)

Paper : 2.2

(Cell Biology)

Full Marks : 60

Time : 2½ hours

*The figures in the margin indicate full marks
for the questions*

1. Answer the following : 1×7=7
- (a) What are cyclins?
 - (b) What does peroxisome do in a cell?
 - (c) Which are the molecules that make possible active transport through membranes?
 - (d) What is the difference between the concepts of karyotype and genome?
 - (e) Differentiate between cytokinesis of plants and cytokinesis of animals.
 - (f) What is polyribosome?
 - (g) What are the three stages of cell signaling?

2. Answer the following : 2×4=8

- (a) What do you mean by proton pump?
- (b) What are the differences in functions of DNA polymerase and RNA polymerase?
- (c) What does RNA play in cell life?
- (d) Give a brief account of characteristic features of B chromosomes.

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

- (a) Give a brief account of repetitive DNA.
- (b) What does *t*-RNA functions as an adaptor in protein synthesis?
- (c) Write down the cellular events and mechanism of apoptosis.
- (d) Explain briefly the structure of nuclear pore complex.
- (e) Describe with sketches the different stages of prophase of Meiosis-I.

4. Answer any *three* of the following : 10×3=30

- (a) Write about various biological molecules contain in the cell membrane. State their roles. 8+2=10
- (b) Give an account of ultrastructure and functions of endoplasmic reticulum. 8+2=10

- (c) Give an account of chemical nature of chromosomes and structure of their subunits at molecular level with suitable evidences. 10
- (d) What are extracellular receptors? Describe the general mechanism of signal transduction through GPCR and G-proteins. 2+8=10
- (e) What is synaptonemal complex? Describe ultrastructure and function of synaptonemal complex. 2+8=10

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