2012

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) Which chemical compound is considered as the framework of biological membrane?

(b) What are porins?

(c) Name the most variable period of the cell cycle.

(d) Define 'synaptonemal complex'.

(e) Differentiate between nucleoside and nucleotide.

(f) Distinguish between euchromatin and heterochromatin.

(g) What is the function of telomere?

2. Answer the following : 2×4=8

(a) What are the different types of chromosomes based on the position of centromere?

(b) What do you mean by 'histone code'?

(c) Define the functions of retrotransposon.

(d) Differentiate between Z-DNA and B-DNA.

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

(a) Describe how primary active transporters help the transport of ions and solutes across cell membrane.

(b) Write a note on C-value paradox.

(c) Describe the ultrastructure of a interphase nucleus.

(d) Elaborate the functions of *r*-RNA.

(e) Describe the morphology of peroxisome and microperoxisome.

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

(a) Describe the structure and genetical significance of polytene chromosome.

(b) Discuss the various molecular events that occur at defined stages of the cell cycle.

(c) Write the structural differences between different types of RNAs.

(d) Discuss the various molecular events related to signal transduction in plants.

(e) Discuss why mitochondria are considered as semiautonomous organelles.

(f) Discuss the various processes of endocytosis by which solid and fluid materials are ingested by the cell.

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