2024
(Session : 2022-26)

Time : 3 hours

Full Marks : 75

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Answer from both the Groups as directed.

Group – A
(Very Short-answer Type Questions)
(Compulsory)

1. Choose the correct answer of the following : 1×5 = 5

(a) Which of the following structures is present only in animal cell ?

(i) Cell membrane

(ii) Lysosomes

(iii) Centrioles

(iv) Ribosomes

(b) Proteins are synthesized by :

(i) Ribosomes

(ii) Mitochondria

(iii) Golgi apparatus

(iv) Mesosomes

(c) Pairing of homologous chromosomes occur during :

(i) Leptotene

(ii) Zygotene

(iii) Pachytene

(iv) Diplotene

(d) Which virus is often used to facilitate the fusion of human and mouse cells in somatic cell hybridization ?

(i) Retro virus

(ii) Sendai virus

(iii) Adeno virus

(iv) Influenza virus

(e) Which measure of central tendency is suitable for nominal data ?

(i) Mean

(ii) Median

(iii) Mode

(iv) Variance

(Short-answer Type Questions)

2. Differentiate between Phagocytosis and Pinocytosis. 5

3. Define apoptosis. How is it different from necrosis. 5

Group – B

(Long-answer Type Questions)

Answer any **four** questions of the following :

4. Describe the location, ultrastructure and function of mitochondria. 15

5. What is cell-adhesion ? Describe the various components of extracellular matrix, which are responsible for this process. 15

6. Give a detailed account of mitotic cell division and add a note on the significance of mitosis. 15

7. Describe the process of establishing a primary cell culture from animal tissues detailing the necessary steps. 15

8. What is hypothesis testing ? How we develop a hypothesis and test it satisfactorily ? 15

9. Write short notes on any **two** of the following : $7\frac{1}{2} + 7\frac{1}{2} = 15$

   (a) Fluid mosaic model

   (b) Microtubules

   (c) Glycocalyx

   (d) Diakinesis

   (e) Pasteurization