

Instructions: All questions in Sections I & II carry equal marks

Illustrate your answers with neat diagrams wherever necessary.

Question 1 Write the following

- (i) Write a short note on macromolecules involved in the cell-cell recognition process. (7 Marks)
- (ii) What are the molecular mechanisms underlying cell-cell adhesion? (7 Marks)

OR

- (i) State differences between prokaryotic and eukaryotic cells. (7 Marks)
- (ii) Illustrate the stages of the cell cycle and their regulation. (7 Marks)

Question 2 Write the following

- (i) Write a note on membrane transport. (7 Marks)
- (ii) Explain the properties of the plasma membrane in detail. (7 Marks)

OR

- (i) Explain the properties of the plasma membrane in detail. (7 Marks)
- (ii) Give a brief note on microtubules. (7 Marks)

Question 3 Write the following

- (i) Give a brief note on the Golgi complex. (7 Marks)
- (ii) What are lysosomes? Explain lysosomal disorders. (7 Marks)

OR

- (i) Give a brief note on the endoplasmic reticulum. (7 Marks)
- (ii) Explain the structure and functions of ribosomes. (7 Marks)

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Question 4 Write the following

- (i) Explain the process of carcinogenesis and the role of carcinogens. (7 Marks)
- (ii) Analyze the relationship between environmental factors and cancer risk. (7 Marks)

OR

- (i) Explain the molecular organisation and functions of the nucleus. (7 Marks)
- (ii) Define cancer, explain its types and describe its basic biological characteristics. (7 Marks)

Question 5 Attempt any seven out of twelve

(14 Marks)

- (i) State types of motor proteins.
- (ii) What are linker proteins?
- (iii) What are ribophorins?
- (iv) Name one type of cell junction found in animal cells.
- (v) What is the significance of the cell cycle?
- (vi) What is the subunit of microfilaments?
- (vii) What is the size range of prokaryotic cells?
- (viii) Define "chromatin" and its main components
- (ix) Briefly explain the difference between benign and malignant tumors.
- (x) What are carcinogens? Provide two examples.
- (xi) What are clathrin coated vesicles?
- (xii) What is the role of the nucleolus in the cell?