2/51 **0402E1404** Candidate's Seat No :_____

MSc Sem.-1 Examination

403

Bio-Chemistry

Time : 2-30 Hours] **February-2025** **[Max. Marks : 70**

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

Illustrate your answers with neat diagrams wherever necessary.

Question 1 **Write the following**

(i) Compare and contrast the structural organisation of prokaryotic and eukaryotic cells. (7 Marks)

(ii) Illustrate the stages of the cell cycle and their regulation. (7 Marks)

OR

(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)

Question 2 **Write the following**

(i) Explain the properties of the plasma membrane in detail. (7 Marks)

(ii) Give a brief note on microtubules. (7 Marks)

OR

(i) Write a note on membrane transport. (7 Marks)

(ii) Explain the properties of the plasma membrane in detail. (7 Marks)

Question 3 **Write the following**

(i) Give a brief note on the endoplasmic reticulum. (7 Marks)

(ii) Explain the structure and functions of ribosomes. (7 Marks)

OR

(i) Give a brief note on the Golgi complex. (7 Marks)

(ii) What are lysosomes? Explain lysosomal disorders. (7 Marks)

Question 4 **Write the following**

(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)

(P.T.O)

OR

(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)

Question 5 Attempt any seven out of twelve (14 Marks)

(i) Name one type of cell junction found in animal cells.

(ii) What is the significance of the cell cycle?

(iii) What is the subunit of microfilaments?

(iv) What is the size range of prokaryotic cells?

(v) State types of motor proteins.

(vi) What are linker proteins?

(vii) What are ribophorins?

(viii) What are clathrin-coated vesicles?

(ix) What is the role of the nucleolus in the cell?

(x) Define "chromatin" and its main components

(xi) Briefly explain the difference between benign and malignant tumors.

(xii) What are carcinogens? Provide two examples.