

Ex/SC/INSC/PG/CORE/TH/MI 104B/2024

M. Sc. (INSTRUMENTATION) EXAMINATION, 2024

(1st Year, 1st Semester)

BIO-MEDICAL SCIENCE—I

Time : 2 Hours

Full Marks : 40

Answer *any four* questions.

1. What are the limitations of cell theory? Describe the structure and function of plasma membrane. Describe the factors that control membrane fluidity. 1+5+4=10
2. How do you justify that an amino acid can act as acid as well as base? Construct the titration curve of glycine vs. NaOH with proper notation. Are proteins with the same number of each different amino acid that forms them necessarily identical proteins? Justify your answer. What is pI of a protein? 2+4+3+1=10
3. What do you mean by the tertiary structure of protein? Discuss different interactions which hold a protein into its tertiary and quaternary structure. What is denaturation of protein? 3+5+2=10
4. Write down the Michaelis-Menten equation with its graphical representation. How is enzyme activity related to pH and temperature? Differentiate competitive and uncompetitive inhibitions. 3+3+4=10

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5. What do you mean by active and passive transports? How does simple diffusion differ from osmosis? What are the factors that control diffusion? 4+2+4=10
6. Describe different types of endocytosis. What is co-transport? What is ion channel? 6+2+2=10

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