

2 ½ Hours

Total Marks: 60

- Note:**
- 1) All questions are compulsory.
 - 2) Draw neat labelled diagrams wherever necessary.
 - 3) Figures to the right indicate full marks
 - 4) All questions carry equal marks.

- Q1 Answer the following (Any Two) 12**
- a) What are glycoproteins? Elaborate on the structure and functions of glycoprotein.
 - b) Enlist the membrane bound proteins. Enlighten on the structure and function of any one of them.
 - c) Give a brief account on various movements of lipids in cell membrane.
 - d) Enlighten on structural lipids of cell membrane in brief
- Q2 Answer the following (Any two) 12**
- a) What is denaturation of proteins? Explain the mechanism of various denaturing agents on proteins.
 - b) Give a brief account on various models of protein folding.
 - c) Diagrammatically explain the lysosomal proteolysis and its significance.
 - d) Elaborate on protein misfolding disorders.
- Q3 Give an account of the following (Any two) 12**
- a) Diagrammatically explain mechanism for type IA topoisomerases.
 - b) How is gel retardation technique used to identify DNA fragments that bind to proteins?
 - c) Give a brief account of how zinc fingers form compact DNA-binding structures.
 - d) Schematically explain the principle of affinity chromatography.
- Q4 Answer the following (Any two) 12**
- a) Schematically represent the biosynthesis of threonine.
 - b) Explain briefly recurring motifs of metabolism.
 - c) Give a brief account of how metabolic pathways can be studied by tracing labelled metabolites.
 - d) List the functions of liver with respect to metabolic regulation.
- Q5 Write short notes on (Any Three) 12**
- a) Therapeutic applications of liposomes.
 - b) Lipid aggregates
 - c) Chaperones
 - d) Writhing number.
 - e) ATP as an energy coupling agent.
 - f) Metabolic adaptations due to starvation.
