

2022

M.Sc. (Bio-Informatics) First Semester
MBIN-8004: Macromolecular Bio-Chemistry

Time allowed: 3 Hours

Max. Marks: 60

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting atleast one question from each Unit.

x-x-x

- I. Attempt the following:-
- What is the difference between protein and peptide
 - Name the forces responsible for stability of quaternary structure of proteins.
 - What is Levinthal paradox?
 - What is Boltzman distribution?
 - Differentiate secondary and tertiary structures of polysaccharides.
 - What do you mean by statistical thermodynamics?
 - Give name and structure of one heteropolysaccharide and one homopolysaccharide.
 - Define statistical weight? (8x1½)

UNIT - I

- II. Write short notes on:-
- Secondary structures of protein
 - Ramachandran plot
 - Importance of cysteine pairing in proteins (3x4)
- III. Write short notes on:-
- Polyproline helices
 - Keratin
 - Titration curve of glycine (3x4)

UNIT - II

- IV. a) What is protein folding? What are determinants of protein folding? How protein folding takes place.
- b) Write short note on negative entropy and third law of Thermodynamics. (7,5)

P.T.O.

(2)

V. Write short notes on:-

- a) Helix Coil transition
- b) Cooperative binding
- c) Protein misfolding

(3x4)

UNIT - III

VI. a) Write short note on rotation angles of phosphodiester chain.

b) Discuss glycoproteins in relevance to associated glycans.

(2x6)

VII. a) Discuss the various double helical structures of DNA in detail.

b) How sequence analysis of polysaccharides are done.

(7,5)

x-x-x