

1128

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:-

- a) Distinguish between conformation and configuration?
- b) What are non polar interactions?
- c) What are unusual amino acids?
- d) Discuss thermodynamics and its significance?
- e) What is partition function?
- f) Discuss the role of partition function.
- g) What is levinthal paradox?
- h) What are glycoproteins?

(8x1½)

**UNIT -I**

- II. a) Discuss Ramachandran plot and its significance.
- b) Discuss the importance of buffer in protein.

(2x6)

- III. a) What are secondary structures of proteins?
- b) Write a note on Quaternary structure of protein.

(2x6)

**UNIT -II**

- IV. a) Discuss protein and misfolding pathways and its significance.
- b) Write a note on Helix coil transition in proteins.

(2x6)

- V. a) What are cooperative binding & its significances?
- b) Write a note on application of statistical thermodynamics.

(2x6)

**UNIT - III**

- VI. a) Discuss DNA polymorphism and its different form.
  - b) What is secondary & tertiary structure of polysaccharides?
- VII. a) Discuss helical properties of DNA.
  - b) Discuss conformation of starch & glycogen.

(2x6)

(2x6)

x-x-x