

Time allowed: 3 Hours

Max. Marks: 45

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

*x-x-x*

I. Answer the following:-

- a) Write the name of amino acids containing (i) indole and (ii) imidazole group.
- b) Why glycine is optically inactive?
- c) What are Beta -turns?
- d) Why certain amino acids are essential for inclusion in the diet?
- e) Define the N- and C-terminus of a protein.
- f) What is the difference between AT pairing and GC pairing?
- g) Name the bond that links the nucleotides.
- h) What are porphyrins?
- i) Write the role of bile acids in digestion. (9x1)

### UNIT - I

II. a) Discuss the important secondary structures present in proteins.

b) Write the Sanger's reaction for determination of free amino group of amino acids. (7,2)

III. a) Draw a peptide bond between two amino acids and discuss its salient properties.

b) Write a note on biological active peptides. (5,4)

### UNIT - II

IV. a) What are the four levels of foldings that makes the protein active?

b) List the major functional roles of proteins. (4,5)

V. Write notes on (any two):-

a) Salting in and salting out.

b) Denaturation of proteins

c) Conjugated proteins (2x4½)

(2)

**UNIT - III**

VI. a) Draw the structures of the purines and pyrimidines present in DNA.

b) Write the differences between

i) Prokaryotic and eukaryotic messenger RNAs.

ii) B and Z DNA.

(4,2,3)

VII. a) Describe the structure and functions of tRNAs.

b) Discuss the alkaline hydrolysis of RNA.

(6,3)

**UNIT - IV**

VIII. a) Draw the porphyrin structure.

b) Describe the different methods for detection of porphyrins.

(2,7)

IX. a) Name some important porphyrin derivatives and their functions.

b) Write a note on bile acids.

(5,4)

x-x-x