B.Sc. S.Y. CBCS Pattern Semester-III

USBCT-C05 - Biochemistry Paper-I : Macromolecules

P. Pages : 2 **GUG/W/23/11596**

Time : Three Hours * 6 5 7 7 * Max. Marks : 50

Notes : 1. All questions are compulsory.
2. All questions carry equal marks.

1. Give a detailed account of classification of amino acid. **10**

OR

a) Give the reaction of ninhydrin with amino acid. **2½**

b) Write a note on non-proteinaceous amino acids. **2½**

c) Explain in brief – Peptide mapping. **2½**

d) Discuss the use of endopeptidase specificity for primary structure determination. **2½**

2. What is secondary structure of proteins? Describe the a α helix and β pleated sheet structures in detail. **10**

OR

Discuss the followings in brief-

a) Write a note on tertiary structure of protein. **2½**

b) Protein denaturation. **2½**

c) Structure and functions of collagen. **2½**

d) Concept of domains. **2½**

3. Describe in detail the Watson-Crick model of B-DNA. **10**

OR

a) Write a note on Chargaff's rules. **2½**

b) Write a note on A-DNA. **2½**

c) Give the importance of base stacking and base pairing in the stability of nucleic acid structure. **2½**

d) Discuss in brief: Z-DNA. **2½**

4. Describe the Maxam-Gilbert method of DNA sequencing. **10**

OR

a) Write a note on Satellite DNA. **2½**

b) Explain the structure of m-RNA. **2½**

c) Explain the relationship between Tm and G-C content in DNA. **2½**

d) Explain the structure of tRNA. **2½**

5. Attempt **any ten** of the following. **10**

a) What is Zwitter ion?

b) How many peptide bonds are present in tetrapeptide?

c) Draw the structure of glutathione.

d) What are 'helix breaker' amino acids?

e) What is met-enkephalin?

f) Name the sulfur containing amino acids.

g) Draw the structure of Uracil.

h) What is nucleotide?

i) State the significance of hydrophobic interactions in stability.

j) Who discovered chemical cleavage method for DNA sequencing?

k) Define renaturation.

l) Draw the structure of t-RNA.

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