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

USBCT-C05 - Biochemistry Paper-I : Macromolecules

P. Pages : 2 **GUG/W/24/11596**

Time : Three Hours * 4 5 4 8 * Max. Marks : 50

Notes : 1. All the questions are compulsory and carry equal marks.
2. Draw well labelled diagrams wherever necessary.

1. What are proteins? Discuss the determination of primary structure of proteins with respect to the followings. **10**

i) Use of endopeptidase specificity.
ii) Cleavage of disulfide bonds.
iii) Assignment of disulfide position.

OR

a) Classify amino acids on the basis of their side chain structure. **2½x4= 10**

b) Discuss the ninhydrin reaction with amino acids.

c) Write a note on Peptide mapping.

d) Briefly explain the structure and functions of enkephalin

2. Describe the following in detail.

i) Forces stabilizing the tertiary structure of proteins. **5**

ii) Protein denaturation. **5**

OR

a) Explain β pleated sheet structure with suitable example. **2½x4= 10**

b) Write the concept of domains.

c) Describe the structure and functions of collagen.

d) Write a note on submit interaction.

3. Explain in detail the Watson-crick model of B-DNA. **10**

OR

a) Write a note on Chargaff's rules. **2½x4= 10**

b) Discuss the structure of Z-DNA.

c) How base stacking is important in the stability of nucleic acid structure? Explain

d) Write a note on formation of Phosphodiester linkages.

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

OR

a) Write a note on Satellite DNA. **2½x4= 10**

b) Draw a well labelled diagram of t-RNA.

c) Explain denaturation of DNA in brief.

d) Discuss the structure of m-RNA.

5. Attempt **any ten** of the following: **1x10= 10**

a) What is Zwitter ion?

b) Write the structure of ornithine.

c) Give any two examples of fiberous proteins.

d) What are helix breaker amino acids?

e) What is co-operative binding of O_2 to hemoglobin?

f) How is the alpha helix stabilized?

g) Draw the ring structure of purine.

h) Give any one point of differentiation between A & Z – DNA.

i) Write the structure of thymine.

j) What is dideoxynucleotide?

k) Define Tm.

l) What happens to buoyant density if G-C content in DNA increases?

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