B.Sc. (Part-II) (CBCS Pattern) Sem-III

USBCT-C05 - Biochemistry Paper-I : Macromolecules

P. Pages : 2 **GUG/W/22/11596**

Time : Three Hours * 2 2 4 1 * Max. Marks : 50

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

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

i) End group analysis
ii) Cleavage of disulfide bonds.
iii) Use of endopeptidase specificity.

OR

Write short notes on following:

a) Reaction of amino acids with formaldehyde. **2½**

b) Non – proteinous amino acids. **2½**

c) Fibrous proteins with suitable example. **2½**

d) Structure and functions of glutathione. **2½**

2. Give a detailed description of:

i) The α helix. **5**

ii) β pleated sheet structures. **5**

OR

a) Write a note on various forces that stabilize the tertiary structure of proteins? **2½**

b) Explain the Subunit interaction **2½**

c) Discuss the structure and biological functions of collagen. **2½**

d) Write a note on Protein Denaturation. **2½**

3. Explain in detail the Watson – Crick model of B – DNA **10**

OR

a) Explain how the base pairing stabilizes the nucleic acid structure. **2½**

b) Draw the purine and pyrimidine ring structure **2½**

c) Write the importance of base stacking in the stability of nucleic acid structure. **2½**

d) Write a note on the formation of phosphodiester linkages. **2½**

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

OR

a) Discuss the denaturation of DNA **2½**

b) Draw a well labelled diagram of t – RNA **2½**

c) Write a note on structure of m – RNA **2½**

d) Write a note satellite DNA **2½**

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

a) Write any one function of r – RNA

b) What is Dideoxynucleotide?

c) How does Tm change with G – C content in DNA?

d) Write any one point of difference between A and Z – DNA

e) What are nucleotides?

f) Draw the structure of adenine nucleotide

g) What are domains?

h) What is co – operative binding?

i) What is protein renaturation?

j) Draw the structure of enkephalin

k) What is oligopeptide?

l) Give any one example of globular protein.

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