

B.Sc.-II (CBCS Pattern) Semester - III
USBCT-C05 - Biochemistry Paper-I : Macromolecules

P. Pages : 2

Time : Three Hours



GUG/S/23/11596

Max. Marks : 50

- Notes : 1. All questions are compulsory & carry equal mark.
2. Draw diagram wherever necessary.

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

OR

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

OR

- a) Write a note on various forces that stabilize the tertiary structure of proteins? **2½**
- b) Give the concept of domains. **2½**
- c) Describe the protein Denaturation **2½**
- d) Describe the structure of collagen **2½**
3. Describe the B-DNA model of Watson & Crick in detail. **10**

OR

- a) Write a note on Chargaff's rules. **2½**
- b) Explain the formation of nucleoside and nucleotides **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) Write a note on physicochemical factors responsible for denaturation of DNA. 2½
- b) Explain the relationship between G-C content and T_m 2½
- c) Explain the structure of mRNA 2½
- d) Write a note satellite DNA. 2½

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

- a) How many peptide bonds are present in tetrapeptide? 1
- b) Write the structure of ornithine 1
- c) What is met-enkephalin? 1
- d) What are helix breakers? 1
- e) Which amino acids are known as helix breakers? 1
- f) What is cooperative binding? 1
- g) Which conditions favour formation of A-DNA? 1
- h) How many base pairs are accommodated per turn of helix of Z-DNA? 1
- i) What is Dideoxynucleotide? 1
- j) What are nucleosides? 1
- k) Write any one point of difference between A and Z-DNA. 1
- l) Who proposed the dideoxynucleotide chain termination method? 1
