

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

P. Pages : 2

Time : Three Hours



GUG/S/25/11596

Max. Marks : 50

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

- 1.** Describe the primary structure determination of proteins w.r.t the followings- **10**
- i) Cleavage of disulfide bonds
 - ii) End group analysis
 - iii) Use of endopeptidase specificity

OR

- a) Write a short note on classification of amino acids on the basis of side chain structure. **2½**
 - b) What are nonproteinous amino acids? Draw their structures. **2½**
 - c) Explain the structure and functions of glutathione and enkephalin. **2½**
 - d) Describe the classification of proteins based on shape. **2½**
- 2.** Describe the secondary structure of proteins w.r.t. the followings- **10**
- i) The α helix
 - ii) β -Pleated sheet structures

OR

- a) Write a note on structure of collagen. **2½**
 - b) Explain the forces that stabilize the tertiary structure of protein. **2½**
 - c) Write a note on domains and its functions. **2½**
 - d) Explain in short protein denaturation. **2½**
- 3.** Describe the Watson-Crick model of B-DNA. **10**

OR

- a) Draw the structures of pyrimidines. **2½**
- b) What are the Chargaff's rules? **2½**

c) How base stacking is important in stabilizing the nucleic acid structure? 2½

d) Write a note on A-DNA. 2½

4. Explain the Maxam-Gilbert method for DNA sequencing. 10

OR

a) Write a note on satellite DNA. 2½

b) Draw the structure of t-RNA. 2½

c) Write a note on denaturation of DNA. 2½

d) Explain the relationship between T_m and G-C content in DNA. 2½

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

a) What is Zwitter ion?

b) Name the Edman's reagent.

c) What is the color of DNB derivative?

d) Draw the structure of a tripeptide.

e) What is subunit interaction?

f) What is the renaturation of protein?

g) What is the difference between nucleosides and nucleotides?

h) Draw the structure of guanine.

i) Draw a purine ring structure.

j) What is buoyant density?

k) What is the dideoxynucleotide?

l) What is polycistronic mRNA?
