Bachelor of Science (B.Sc.) Semester–III (CBS) Examination

BIO-CHEMISTRY (MACROMOLECULES)

Paper–I

Time : Three Hours] [Maximum Marks : 50

N.B. :— (1) All questions are compulsory and carry equal marks.

(2) Draw neat diagrams wherever necessary.

1. What are amino acids ? Discuss the classification of amino acids based on the "R groups". 10

OR

Write notes on the following :

(a) Reaction of amino acid with ninhydrin. 2½

(b) Reaction of amino acids with formaldehyde. 2½

(c) Disulfide bond cleavage reaction. 2½

(d) Peptide mapping. 2½

2. Describe the forces that stabilize the tertiary structure of protein. Illustrated with examples. 10

OR

(a) Write a note on Quaternary structure of proteins. 5

(b) Describe the α-helical structure of proteins. 5

3. Explain in detail Watson and Crick model of DNA. 10

OR

(a) Write the chemical structures of purine and pyrimidine bases. 5

(b) Describe DNA denauration. 5

4. Describe the Sanger's dideoxy method of DNA sequencing. 10

OR

Write notes on :

(a) Satellite DNA 2½

(b) rRna 2½

(c) mRNA 2½

(d) Tm. 2½

5. Write any **ten** of the following : 10

(i) Write the full form of FDNB

(ii) Name the simplest amino acid

(iii) Write the chemical structure of one basic amino acid.

(iv) What are domains ?

(v) What is meant by Protein Denaturation ?

(vi) Name the bonds responsible for stabilizing the secondary structure of proteins.

(vii) Name the components of a nucleotide.

(viii) Define base stacking.

(ix) In nucleic acids two sugar residues are linked by a _____ bond.

(x) Chemical cleavage method of DNA sequencing is also called _____.

(xi) Clover leaf model represents the structure for _____ RNA.

(xii) Write one difference between prokaryotic and eukaryotic mRNA.