NKT/KS/17/5122

Bachelor of Science (B.Sc.) Semester—III (C.B.S.) Examination

BIO-CHEMISTRY (Macromolecules)

Paper—I

Time : Three Hours] [Maximum Marks : 50

Note :— ALL questions are compulsory and carry equal marks.

1. Give detail account of Merrifield and Gutt method for the synthesis of peptides. 10

OR

(a) Describe the reaction of amino acid with Ninhydrin. 5

(b) Describe the reaction of amino acid with Edwan's reagent. 5

2. (a) With the help of suitable diagram describe the structure of collagen. 5

(b) Describe in detail the denaturation and renaturation of proteins with suitable example. 5

OR

Describe the α-helical structure and β-pleated sheets of protein structure. 10

3. Draw the chemical structures of dATP, dGTP, dTTP, dCTP and UTP. 10

OR

Write short notes on :

(a) Chargaff's Rule 2½

(b) Z-DNA 2½

(c) Denaturation of DNA 2½

(d) Hydrophobic interactions and base stacking. 2½

4. Describe Maxam-Gilbert's method for sequencing of DNA. 10

OR

(a) Give detail structure of mRNA. 5

(b) What is Tm ? Add a note on its relationship with G-C content in DNA. 5

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

(i) Name any two steps involved in the determination of primary structure of proteins. 1

(ii) What is the name of Sanger's reagent used in end group analysis of a polypeptide ? 1

(iii) Name any two unusual amino acids. 1

(iv) Name the amino acids frequently present in the β-pleated sheet of proteins. 1

(v) What are domains ? 1

(vi) Name any one protein having quaternary level of structure. 1

(vii) How many base pairs are present in A-DNA per turn ? 1

(viii) Name any two unusual bases present in tRNA. 1

(ix) Why is DNA negatively charged ? 1

(x) Who proposed the double helical structure of DNA ? 1

(xi) Sanger's dideoxy method of DNA sequencing is also called ..... method. 1

(xii) Who proposed the structure of alanyl-tRNA ? 1