

NRT/KS/19/2089

Bachelor of Science (B.Sc.) Semester-III Examination
BIO-CHEMISTRY (MACROMOLECULES)
Optional Paper-I

Time : Three Hours]

[Maximum Marks : 50

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

(2) Draw neat, well labelled diagram wherever necessary.

1. What are amino acids ? Describe the classification of amino acids based on their "polarity". 10

OR

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

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

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

OR

Describe in detail the forces that stabilize the tertiary structure of protein. 10

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

OR

(a) Write the chemical structure of A=T and G≡C pairs. 5

(b) Write a note on - 'Z' DNA. 5

4. Describe in detail Sanger's dideoxynucleotide sequencing of DNA. 10

OR

(a) What is T_m ? Add a note on its relationship with G-C content of DNA. 5

(b) Write a note on - tRNA. 5

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

(i) Name any two unusual amino acids. 1

(ii) _____ is an "*imino acid*". 1

(iii) Name one sulphur containing amino acid. 1

(iv) What are domains ? 1

(v) Name one amino acid frequently present in β -Bend. 1

(vi) What is Base stacking ? 1

(vii) Proteins having more than one peptide chain have a _____ structure. 1

(viii) Chemical cleavage method of DNA sequencing is also known as _____ method. 1

(ix) What is DNA denaturation ? 1

(x) Define buoyant density. 1

(xi) Write one difference between prokaryotic and eukaryotic mRNA. 1

(xii) How many base pairs are present per turn of A-DNA ? 1