NJR/KS/18/3035

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

BIO-TECHNOLOGY (MACROMOLECULES)

Compulsory Paper—2

Time : Three Hours] [Maximum Marks : 50

Note :— (1) **ALL** questions are compulsory and carry equal marks.

(2) Draw diagrams wherever necessary.

1. (a) Describe the structure of t-RNA. 5

(b) Write a note on A and Z forms of DNA. 5

OR

(c) Give the chemical structures of nucleosides of DNA. 5

(d) Describe the forces stabilizing nucleic acid structure. 5

2. Write short notes on :

(a) Differentiate between pro – and Eu-karyotic gene. 2½

(b) Role of Centromere. 2½

(c) Domain and loop structure of nucleosome. 2½

(d) Role of histones in octamer bead formation. 2½

OR

(e) Split genes. 2½

(f) Role of telomere. 2½

(g) C-Value and C-Value paradox. 2½

(h) Basic idea of cot curves. 2½

3. Describe the classification of amino acids on the basis of polarity of R-group. 10

OR

Describe the determination of primary structure of protein on the basis of end group analysis and amino acid composition determination. 10

4. (a) Describe the forces stabilizing quaternary structure of protein. 5

(b) Describe the structure of myoglobin. 5

OR

Describe the secondary structure of protein. 10

5. Solve any **TEN** :

(i) Chargaff's rules are applicable to which macromolecule ? 1

(ii) What is a nucleotide ? 1

(iii) Give the structure of thymine. 1

(iv) What is a 30 nm fiber ? 1

(v) What are spacers ? 1

(vi) What is a linker DNA ? 1

(vii) Name any one aromatic amino acid. 1

(viii) Name the chemicals used to break disulphide bond of protein. 1

(ix) What are essential amino acids ? 1

(x) Give an advantage of oligomeric proteins. 1

(xi) What is protein denaturation ? 1

(xii) Name the amino acids present in β-bend. 1