

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

**BIO-TECHNOLOGY**

**(Macromolecules)**

**Compulsory Paper—2**

Time : Three Hours]

[Maximum Marks : 50

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

(2) Draw diagrams wherever necessary.

1. Discuss in detail Maxam and Gilbert DNA sequencing method. 10

**OR**

Explain in detail Watson Crick model of DNA and its deviations. 10

2. (a) Explain C-value and C-value paradox. 5

(b) Write a note on Histone Octamer. 5

**OR**

Write notes on :

(c) Role of telomere and centromere. 5

(d) Concept of split gene. 5

3. What are amino acids ? Discuss classification of amino acids based on polarity. 10

**OR**

Discuss various steps involved in determination of primary structure of protein with respect to End Group analysis and assignment of disulphide position. 10

4. (a) Write a note on domain structure. 2½

(b) Write a note on protein denaturation. 2½

(c) Write a note on disulphide bond and in protein hydrophobic association in protein. 2½  
(d) Explain  $\beta$ -structure of protein. 2½

**OR**

(e) Describe the bonds that stabilize tertiary structure of protein. 2½  
(f) Explain  $\alpha$ -helical structure of protein. 2½  
(g) Write a note on myoglobin. 2½  
(h) Write a note on quaternary structure of protein. 2½

5. Solve any **TEN** :

(i) What is phosphodiester bond ? 1  
(ii) Give the structure of Adenylic acid. 1  
(iii) tRNA is also called soluble RNA. Why ? 1  
(iv) What are Spacers ? 1  
(v) What are Scaffolding proteins ? 1  
(vi) What is Linker DNA ? 1  
(vii) What are Zwitter Ions ? 1  
(viii) What are Imino Acids ? 1  
(ix) Name any two sulphur containing amino acids. 1  
(x) What is  $\beta$ -turn ? 1  
(xi) What is oligomeric protein ? 1  
(xii) What is meant by electrostatic forces in protein ? 1