NKT/KS/17/5183

Bachelor of Science (B.Sc.) Semester–V (C.B.S.) Examination

BIO-CHEMISTRY

(Molecular Biology)

Paper—2

Time : Three Hours] [Maximum Marks : 50

N.B. :— (1) Draw diagrams wherever necessary.

(2) **ALL** questions are compulsory and carry equal marks.

1. Describe the initiation process of DNA replication. 10

OR

Write notes on :

(a) Semiconservative nature of replication with experimental proof. 5

(b) Termination of DNA replication. 5

2. Describe the important properties of DNA polymerase I. 10

OR

(a) Describe the structure of DNA polymerase III holenzyme. 5

(b) Write a note on Mismatch Repair. 5

3. Describe the initiation process of RNA transcription. 10

OR

Write short notes on :

(a) σ (Sigma) subunit. 2½

(b) Abortive initiation. 2½

(c) rho dependent termination. 2½

(d) Role of promoter. 2½

4. Describe the major features of lac operon. 10

OR

Describe briefly :

(a) Reverse transcription. 5

(b) Explain diagramatically the working of trp operon. 5

5. Solve **any ten** of the following :–

(i) Name the main components of E. coli replication origin. 1

(ii) Name the scientist who gave the concept of Okazaki fragments. 1

(iii) What is the role of 'tus' protein ? 1

(iv) What is the rate of accuracy of DNA replication ? 1

(v) What is meant by Klenow fragment ? 1

(vi) Name the major enzyme responsible of SOS repair in prokaryotes. 1

(vii) Name the technique used in determination of length of promoter sequence. 1

(viii) What is meant by weak and strong promoter ? 1

(ix) Name the sub-units of bacterial core RNA polymerase. 1

(x) Which sub-unit of RNA polymerase is affected by rifamycin ? 1

(xi) What is attenuation ? 1

(xii) Name the enzyme which can synthesize DNA from RNA. 1