(i) Printed Pages : 2 Roll No. .....

(ii) Questions : 9 Sub. Code : 1 7 9 8 1

Exam. Code : 0 0 3 7

B.Sc. (Hons.) Biotechnology 5th Semester

(2124)

MOLECULAR BIOLOGY

Paper : BIOT-501-T

Time Allowed : Three Hours] [Maximum Marks : 67

Note :— Question No. 1 is compulsory. Attempt any **one** question from each unit. Draw well defined diagram wherever required.

1. Briefly explain the following :
   (i) Characteristics of Z form of DNA.
   (ii) Insertional elements and its importance.
   (iii) Write a short note on Processivity and Fidelity of DNA.
   (iv) Structure of Eukaryotic promoter.
   (v) Structure of Prokaryotic and Eukaryotic rRNA. 3×5=15

UNIT—I

2. (i) Write down chemical composition of DNA. 8
   (ii) Write a short note on Tandemly Repetitive DNA. What are VNTR and its importance ? 5

3. (i) Differentiate characteristic features of Prokaryotic and Eukaryotic genome organization. 8
   (ii) Write a short note on SINE and LINE by giving suitable example. 5

UNIT—II

4. (i) Differentiate between prokaryotic and eukaryotic DNA replication initiation process. 8

   (ii) Briefly explain functional role of Telomerase. 5

5. (i) Differentiate between prokaryotic and eukaryotic DNA polymerase enzymes and their function. 8

   (ii) Explain how replication takes place in same direction on both the strands of the DNA. 5

UNIT—III

6. (i) Differentiate between prokayrotic and eukaryotic RNA Polymerase enzyme. 8

   (ii) Differentiate between prokaryotic and eukaryotic transcription termination. 5

7. (i) Differentiate between prokaryotic and eukaryotic transcription. 8

   (ii) Briefly describe Transcription factors and their role in transcription initiation. 5

UNIT—IV

8. (i) Explain role of different factors involved in translation process. 8

   (ii) Explain characteristic features of Tryptophan operon. 5

9. (i) Write down mechanism of inducible gene regulation in prokaryotes. 8

   (ii) Diagrammatically explain translation process. 5