

(i) Printed Pages : 3

Roll No.

(ii) Questions : 9

Sub. Code :

0	9	8	2
---	---	---	---

Exam. Code :

0	0	3	7
---	---	---	---

B.Sc. (Hons.) Biotechnology 5th Semester
(2122)

MOLECULAR BIOLOGY

Paper : BIOT-501-T

Time Allowed : Three Hours]

[Maximum Marks : 67

Note :— Attempt five questions in all by selecting one question from each Unit. Question No. 1 is compulsory. Draw diagram wherever required.

(Compulsory Question)

1. Write in brief :

- Main differences between D-DNA and A-DNA.
- What are Minisatellites ?
- Difference between DNA Polymerase I and Polymerase III.
- What is the role of peptidyl transferase ?
- Give the sequences for Amber, Opal and Ochre codons and mention their significance. 5×3

UNIT—I

2. (a) Give the detailed chemical composition of DNA and the structure of B-DNA. Under normal Physiological state which form of DNA exists ? 7

- (b) Describe the molecular nature of genetic material in prokaryotes. 6
3. (a) Describe the complete genomic organization of eukaryote. 8
- (b) Discuss what are Insertional elements and mention their significance. 5

UNIT—II

4. (a) What is a replicon? Mention all the initiation factors and their assembly to start the replication in eukaryotes. 7
- (b) Discuss the DNA Replication in M13 Virus. 6
5. (a) Describe in detail how disassembly and reassembly of chromatin components takes place during DNA replication in eukaryotes. 8
- (b) Discuss the role of telomerase and its mode of action. 5

UNIT—III

6. (a) Differentiate between the r-RNA of Prokaryotes and Eukaryotes. 7
- (b) Discuss the structure and function of sigma factor with diagrams. 6
7. (a) Describe the positive and negative regulations of transcription by repressors. 8
- (b) Mention diagrammatically clover leaf structure of t-RNA. 5

UNIT—IV

8. (a) Discuss how tRNAs are charged with amino acids and which enzymes are involved in this charging mechanism ? 8
- (b) Discuss the characteristics of genetic codes. How many types of codes are present and what is their role ? 5
9. (a) How is *Tryptophan operon* induced and controlled ? 7
- (b) Discuss the initiation and extension of translation in prokaryotes. 6

C4KNOWLEDGE SEEKERS