

(i) Printed Pages : 3

Roll No. ....

(ii) Questions : 9 Sub. Code : 

2	5	9	3	9
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Exam. Code : 

0	4	3	5
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M.Sc. Bio-Technology 1<sup>st</sup> Semester

(2124)

## MOLECULAR BIOLOGY

Paper—MBIO-104

Time Allowed : Three Hours] [Maximum Marks : 80

Note :— (1) Question No. 1 is compulsory.

(2) Attempt any *five* questions in all by selecting any *one* question from each unit.

(3) All questions carry equal marks.

1. Explain the following :

(1) Give the structure of the eukaryotic gene.

(2) What is VNTR ?

(3) Give different components of DNA polymerase III.

(4) What is Transcription abortion ? Why does it occur ?

(5) What are translation inhibitors ? Give examples.

(6) What is the use of Cre lox recombination technology in molecular biology ?

(7) What is genetic counseling ?

(8) SHINE DALGARNO sequences and its function.

2×8=16

## UNIT—I

2. (i) Explain the involvement of various proteins in events occurring at the replication fork in detail with well-labelled diagrams.
- (ii) Explain the Holliday model of homologous recombination.
3. (i) What is a promoter ? Explain the initiation of transcription in eukaryotes in detail.
- (ii) Explain the termination of transcription in prokaryotes and eukaryotes in detail.

## UNIT—II

4. (i) What are introns ? Explain the different types of introns and their splicing mechanisms in detail by giving well-labelled diagrams.
- (ii) Give capping and polyadenylations of m-RNA.
5. (i) What is translation ? Explain the difference between the initiation of prokaryotic and eukaryotic translation in detail by giving well-labelled diagrams.
- (ii) Give well-labelled diagrams of t-RNA.

## UNIT—III

6. (i) Who developed the concept of an operon ? Give positive and negative regulation of lac operon in detail.
- (ii) What is chromatin remodeling ? How does it occur ?

7. (i) How proto-oncogenes are converted into oncogenes ?  
Explain by giving suitable examples.
- (ii) Give the structure of p53. Why is it called “GUARDIAN OF GENOME” ?

#### UNIT—IV

8. What are molecular markers ? Explain the procedure and detailed applications of RFLP in different fields of biology.
9. (i) What is PCR ? Give different types of PCR. Explain the application of PCR in detail.
- (ii) Give sequencing strategies of DNA in detail.