

Roll No.

Total Pages : 3

7300/N

J-19/2110

MOLECULAR GENETICS

Paper-II

Semester-I

Time allowed : 3 Hours] [Maximum Marks : 75

Note : The candidate are required to attempt **two** questions each from Section A and Section B carrying **15** marks each and entire section C is compulsory consisting of **10** short answer type questions of **1½** marks each.

SECTION-A

1. Discuss the mechanism of transcription in prokaryotes by giving role of various proteins involved in this process. 15
2. (a) Discuss the ultrastructure of chromosomes in eukaryotes. 10
(b) Explain briefly the DNA fingerprinting. 5

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3. Give a detailed account of protein synthesis with special reference to the factors involved in initiation and elongation. 15
4. (a) Define operon. Discuss the Lac operon in detail. 10
(b) Write a note on quorum sensing. 5

SECTION-B

5. (a) Discuss the chloroplast genome along with its significance. 10
(b) Define vector. What should be the properties of an ideal vector. 5
6. Enlist various methods of DNA sequencing. Discuss Maxam-Gilbert method. 15
7. (a) What is 2DGE? Discuss this technique along with its applications. 8
(b) What is MS technique? Discuss along with its applications. 7
8. (a) Discuss the applications of genomics in Biotechnology. 10
(b) Write a note on Microarray. 5

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SECTION-C

9. Explain briefly the following : $1\frac{1}{2}\times 10=15$

- (i) Transposons
- (ii) Ribozymes
- (iii) Gyases
- (iv) Nucleosomes
- (v) western blotting
- (vi) FISH
- (vii) Pyrosequencing
- (viii) M13
- (ix) iRNA
- (x) Exons.