Roll No. ..... **Total No. of Pages : 2**

PC 12994-N

K-13/2111

MOLECULAR GENETICS—1102T

Semester—I

Time Allowed : Three Hours] [Maximum Marks : 75

Note :– The candidates are required to attempt *two* questions each from Sections A and B. Section C will be compulsory.

SECTION—A

1. Name various repair mechanisms of DNA. Describe these mechanism of DNA repair. 15

2. (a) Discuss in detail the molecular mechanism and enzymes involved in transcription.

   (b) Write a note on suppressor genes. 12+3=15

3. Describe the special features of genome organization of various bacteriophages (ϕ×174, lambda and HIV phages). 15

4. (a) Discuss the mechanism of gene regulation in eukaryotes.

   (b) Write a note on apoptosis. 12+3=15

SECTION—B

5. (a) Describe genetic mapping and linkage analysis.

   (b) Write a note on DNA footprinting. 10+5=15

6. (a) Enlist various techniques of DNA sequencing. Discuss chemical degradation method.

   (b) Write a note on phylogenetics. 10+5=15

7. (a) Name various blotting techniques. Explain northern and dot blotting and give their significance.

   (b) Write a note on PCR. 10+5=15

8. What do you understand by functional genomics ? Enlist various techniques of functional genomics. Describe any three techniques. 15

SECTION—C

9. Explain briefly the following :

   (a) Nucleases

   (b) Site specific recombination

   (c) MALDI-TOF

   (d) Catabolic repression

   (e) Transcription factors

   (f) DNA dependent RNA polymerase

   (g) TATA box

   (h) FISH

   (i) Oncogenes

   (j) iRNA. 1.5×10=15