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

(ii) Questions : 9 Sub. Code : 0 3 5 8

Exam. Code : 0 0 0 4

B.A./B.Sc. (General) 4th Sem.

(2042)

BIO-TECHNOLOGY

Paper—BIOT-Elect-Sem.-IV-T : Fundamentals of Molecular Biology and Genetics

Time Allowed : Three Hours] [Maximum Marks : 75

Note :— Attempt **FIVE** questions in all including Q.No. 9 (Section-C) which is compulsory and selecting any **TWO** questions each from Sections A and B.

SECTION—A

1. (a) Discuss the structure of B-DNA. 7

   (b) Describe the molecular mechanism of DNA recombination in prokaryotes. 8

2. Write a note on the process of replication initiation in eukaryotes. 15

3. (a) Explain the termination of transcription in prokaryotes. 7

   (b) Write a note on the organization of prokaryotic gene. 8

4. Write a note on post transcriptional modifications in eukaryotes and their significance. 15

SECTION—B

5. (a) Write a note on the Lactose Operon. 8

   (b) Discuss the role of termination of Translation in prokaryotes. 7

6. (a) Write notes on :—

   (1) Post translation modifications

   (2) Transcription factors. 7

   (b) Explain the phenomenon of attenuation in Trp Operon. 8

7. (a) Discuss the Mendel's Law of Dominance. 8

   (b) Write a note on Population genetics. 7

8. (a) What are Mutagens ? Discuss the different types of physical mutagens. 5

   (b) What are Transposons ? Discuss their role. 4

   (c) Discuss the different numerical aberrations in Chromosomes. 6

SECTION—C

9. (a) Draw the structure of Deoxy ribose sugar. 3

   (b) TATA Box 2

   (c) Gene mapping 2

   (d) Insertion Elements 2

   (e) Discuss the organization of DNA into Histones 3

   (f) Discuss the role of enhancers and insulators. 3