(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 Semester

1048

BIO-TECHNOLOGY

Paper – BIOT-Elect-Sem-IV-T : Fundamental of Molecular Biology and Genetics

Time Allowed : Three Hours] [Maximum Marks : 75

Note :— Attempt **five** questions in all. Q. 9 is compulsory. Select **two** questions from each section. **All** questions carry equal marks.

SECTION—A

1. Elaborate on the mode of DNA replication in prokaryotes. 15

2. (a) Explain the reason behind the formation of lagging strand during DNA replication. 7

   (b) Discuss the structure of different types of DNA. 8

3. (a) Describe the termination of transcription in eukaryotes. 8

   (b) What is the role of rho factor in prokaryotic transcription ? 7

4. Write a detailed note on the post transcriptional modifications in eukaryotes. 15

SECTION—B

5. (a) Describe the process of Catabolic repression in Lactose Operon. 8

   (b) What is the role of Enhancers and Insulators in eukaryotic gene expression ?. 7

6. Write a note on the chromosome structure and packaging of DNA. 15

7. (a) Discuss Mendel's Laws of Inheritance. 7

   (b) List two examples each of structural and numerical aberrations in chromosomes. 8

8. (a) What is the role attributed to the insertion elements and transposons ? 7

   (b) Write a note on the types of chemical and physical mutants. 8

SECTION—C

9. Answer briefly :

   (a) Population genetics 2

   (b) Linkage 2

   (c) Catabolic repression 3

   (d) Transcription factors 2

   (e) DNA polymerase III 2

   (f) Prokaryotic promoter 2

   (g) CTD of RNA polymerase. 2