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

(ii) Questions : 7 Sub. Code : 1 0 0 1

Exam. Code : 0 0 4 1

B.Sc. (Hons.) Bioinformatics 3rd Semester

(2122)

FUNDAMENTALS OF MOLECULAR BIOLOGY

Paper : BIN-3001

Time Allowed : Three Hours] [Maximum Marks : 60

Note :— Attempt **FIVE** questions in all, by selecting **TWO** questions from each Unit and the first compulsory question.

1. Compulsory Question :—
   (i) What are the properties of DNA Polymerase ?
   (ii) Briefly explain mRNA stability.
   (iii) Differentiate between Natural and Chemical mutagens.
   (iv) Briefly explain constitutive synthesis of enzymes. 4×3

UNIT—I

2. (a) Compare and contrast the difference in mechanism of synthesis of leading and lagging strands of DNA. 6

   (b) Discuss process of 3'-end poly A tail synthesis & its importance. 6

3. (a) Discuss experimental proof of semi-conservative mode of DNA replication in eukaryotes. 6

(b) Explain mechanism and importance of m-RNA splicing and editing. 6

4. (a) Discuss mechanism of transcription. 6

(b) Write notes on the following :—

- Post replication repair
- SOS repair. 6

UNIT—II

5. (a) Discuss the relationship between Wobble hypothesis and degeneracy of genetic code. 6

(b) Explain catabolite repression giving suitable example. 6

6. (a) Explain the concept and regulation of a repressible operon taking a suitable example. 6

(b) How do aromatic dyes cause mutations ? 6

7. (a) Discuss an inducible operon along with its regulation. 6

(b) What is the mechanism of translation and the role of polysomes ? 6