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B.Sc. 4th Semester (New Scheme) (Fresh and Re-Appear)

Examination, May-2023

BIO-TECHNOLOGY

Paper- BT-402

Molecular Biology

Time allowed : 3 hours]

[Maximum marks : 40

Note : Question No.1 is compulsory and attempt any four questions selecting one question from each unit given below. All questions carry equal marks.

1. Write the notes on following:  $8 \times 1 = 8$

(a) Promoter

(b) Type of DNA

(c) Mutation

(d) Gene & genome

(e) Intron & exon

(f) Transcription factors

(g) Antibiotics

(h) Charging of tRNA

Unit-I

2. What is the genetic material? Describe the Watson and Crick model of DNA?  $8$

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3. Write the notes on any *two*:

2×4=8

- (a) Replication of DNA
- (b) Function of DNA
- (c) Semi-conservative nature of DNA replication

### Unit-II

4. What is the homologous recombination? Describe models and mechanism for the homologous recombination. 8

5. Write the notes on any *two*:

2×4=8

- (a) Photo-reactivation repair
- (b) Mismatch repair
- (c) Reasons for DNA damages and its effects

### Unit-III

6. • What is the RNA splicing? Describe the processing of the RNA splicing in detail 8

7. Write the notes on any *two*:

2×4=8

- (a) Type of RNA
- (b) • RNA polymerase
- (c) • Difference between prokaryotic and eukaryotic transcription

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Unit-IV

8. What is ribosome? Describe the structure and functions of the ribosome. 8
9. Write the notes on any *two*: 2×4=8
- (a) Genetic code and its characteristics
  - (b) Translation in prokaryotic
  - (c) Post-translational modifications of proteins

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