Progressive Education Society's

Modern College of Arts, Science & Commerce Ganeshkhind, Pune – 16,
NEP 2020 (Autonomous)
End Semester Examination: OCT/NOV- 2024

***Total No. of Questions**: 4* ***Total No. of Pages**: 2*

SECOND YEAR (BIOTECHNOLOGY)
BIO2313: MOLECULAR BIOLOGY
(Semester III)

Program: B.Sc. Biotechnology (04) **Credits: 2**
Program Specific: Biotechnology **Time: 2 Hours**
Course Type: Core **Max. Marks: 30**
SET: A

Instructions to the candidate:

1) *All questions are compulsory.*
2) *Figures to the right indicate full marks.*
3) *Draw a well labelled diagram wherever necessary.*

SECTION: A

Q1) Answer the following. **[1 X 5 = 5]**

1. Define introns.
2. What are synonyms?
3. Give example of DNA repair mechanism.
4. What is semiconservative replication mode of DNA?
5. Define operon.
6. State the role of general transcription factors in transcription.

SECTION: B

Q2) Answer any <u>FIVE</u> of the following (5/7). **[2 X 5 = 10]**

1. Define missense and nonsense mutations.
2. Explain the structure of prokaryotic ribosomes.
3. Draw the neat labelled diagram of a prokaryotic promoter.
4. Describe any one spontaneous chemical mutation.
5. What is catabolite repression?
6. State the role of DNA polymerase.
7. Illustrate arabinose operon.

SECTION: C

Q3) Answer any <u>TWO</u> of the following (2/4). [5 X 2 = 10]

1. Explain the structure of t-RNA with neat labelled diagram.
2. Explain in detail nucleotide excision repair mechanism.
3. Describe with suitable diagram the splicing mechanism with the help of spliceosome.
4. Discuss the mechanism of termination of transcription in prokaryotes.

SECTION: D

Q4) Answer any <u>ONE</u> of the following (1/2). [5 X 1 = 5]

1. With suitable diagram describe the initiation of transcription in eukaryotes.
2. Write a note on prokaryotic DNA replication.

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