



B.Sc. IV Semester Degree Examination, September/October - 2023

BIOTECHNOLOGY

Molecular Biology

(NEP)

Time : 2 Hours

Maximum Marks : 60

Note : (i) Answer **all** sections.

(ii) Draw diagrams wherever necessary.

SECTION - A

1. Answer the following sub-questions. **10x1=10**
- (a) What are the components of Nucleic acid ?
 - (b) What are replication bubbles ?
 - (c) What do you mean by DNA damage ?
 - (d) Expand MMR.
 - (e) Define SnRNA.
 - (f) Mention any two terminator codons.
 - (g) Name the Purines and Pyrimidines in RNA.
 - (h) What is leading strand in DNA replication ?
 - (i) Expand REN.
 - (j) Which sequence of DNA bases would pair with this partial strand ATG TGA CAG ?

SECTION - B

Answer **any four** of the following questions.

4x5=20

- 2. Explain the connection between the DNA damage, repair and aging.
- 3. Write the difference between DNA and RNA.
- 4. Explain the process of DNA replication in Prokaryotes.
- 5. Explain the structure of the clover leaf model of tRNA.
- 6. What is Genetic Code ? Write the properties of Genetic code.
- 7. Write a short notes on RNA Polymerase.



SECTION - C

Answer **any three** of the following questions.

3x10=30

8. Write an explanatory note on the Semi-Conservative replication of DNA.
9. Explain a double stranded DNA molecule with a neat labelled diagram. Add a note on its functions.
10. Discuss the role of homologous recombination in repairing the double strand breaks in DNA.
11. Explain in detail about Central Dogma.
12. Explain in detail about the translation mechanism in Eukaryotes.

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