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(20425) Roll No. R2306862500021

B.Sc.(Bio-Tech.) - II yr.

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B.Sc. (Biotechnology)

Examination, April-2025

MOLECULAR BIOLOGY

(B-203)

(B.Sc. Bio-Tech)

Time : Three Hours] *[Maximum Marks : 50*

Note : Attempt any **five** questions. **All** questions carries equal marks. Draw diagrams whenever necessary.

1. Describe the general structure of bacterial insertion elements and transposons. Explain the differences between transposable elements of bacterial and eukaryotic genomes.

P.T.O.

2. Why tryptophan operon is a repressible operon? Explain the regulation of tryptophan operon by transcription attenuation.
3. Give a detailed account of transcription initiation, elongation and termination in prokaryotes with suitable diagrams.
4. Write short notes on the following:
   (i) TATA BOX
   (ii) Z form of DNA
   (iii) Pseudo genes
   (iv) Wobble Hypothesis
5. What are the major features of Watson Crick double helix structures for DNA. Write a note on stability of DNA helix.
6. Explain the process of translation in prokaryotes with suitable diagrams.
7. Give a detailed account of levels of control of gene expression in eukaryotes.

8. Explain various DNA repair mechanisms. Why is DNA repair mechanism important?
9. What are the major DNA polymerases involved in replication of eukaryotic genomes. Explain the stages of DNA replication in eukaryotes in detail.
10. Explain the following levels of DNA packaging into chromosomes: Nucleosomes, 30 nm fiber, meta-phase chromosomes.