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**25-BT-21**

**M.Sc. II SEMESTER [MAIN/ATKT] EXAMINATION  
MAY - JUNE 2025**

**BIOTECHNOLOGY**

Paper - I

**[Molecular Biology]**

*[Max. Marks : 75]*

*[Time : 3:00 Hrs.]*

*[Min. Marks : 26]*

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**Note :** Candidate should write his/her Roll Number at the prescribed space on the question paper.  
Student should not write anything on question paper.  
Attempt all five questions. Each question carries an internal choice.  
Each question carries **15 marks**.

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**Q. 1** What is the structure of Eukaryotic Chromosome ? Briefly explain how DNA is packed inside it.

**OR**

Write note on the following -

- i) Heterochromatin and Euchromatin.
- ii) Satellite DNA.

**Q. 2** Explain the steps of DNA replication in Prokaryotes, including initiation, elongation and termination.

**OR**

Write note on the following -

- i) Structure of Double helix model of DNA.
- ii) Recombination.

**Q. 3** Write note on the following -

- i) Lac-operon and its regulation.
- ii) RNA Polymerase structure and assembly.

**OR**

Write note on following -

- i) Trp-Operon and its regulation.
- ii) General Transcriptional Factors.

P.T.O.

**Q. 4** Explain the process of Prokaryotic translation in detail.

**OR**

Write note on the following -

- i) RNA editing.
- ii) Wobble Hypothesis.

**Q. 5** Write note on the following -

- i) Replica plating technique.
- ii) Mutagenic Agents.

**OR**

Write note on the following -

- i) Types of Mutation.
- ii) Ames Test.

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