

**Post Graduate Teaching Department of Zoology**  
**An Autonomous Department of**  
**Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur**  
**Programme: M. Sc. Zoology Semester -II (CBCS)**  
**Theory Examination Summer-2023**

**Code and Name of Paper: PGZO2T3 Paper-2T3-Molecular Biology and Biotechnology**

**Time: 3hrs**

**Maximum Marks: 60**

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**Note**

- 1. All the questions are compulsory.**
- 2. All questions carry equal marks.**
- 3. Draw well labelled diagrams and charts wherever necessary.**

**Q.1** Describe in detail structure of chromosome and forms of DNA. **12**

OR

**Write notes on: -**

- (a) Eukaryotic DNA replication.
- (b) Transposable elements in bacteria.

**Q.2** Explain in detail the eukaryotic transcription. Add a note on post transcription modification. **12**

OR

**Write notes on: -**

- (a) Lac Operon model.
- (b) Transcriptional repressors.

**Q.3** Write in detail Sanger's method of DNA sequencing. **12**

OR

**Write notes on: -**

- (a) Southern hybridization.
- (b) Gene silencing.

**Q.4** Describe in detail application of RFLP in forensic science. **12**

OR

**Write notes on: -**

- (a) Genetically modified (GM) crop.
- (b) Hybridoma technology.

**Q. 5 Write in brief on the followings: -** **12**

- (a) Mismatched repair.
- (b) Translation.
- (c) Restriction enzymes.
- (d) Single Cell proteins.