

**B.Sc. Sem.-5 Examination****302****Biochemistry Molecular Biology****September 2024****Time : 2-30 Hours]****[Max. Marks : 70**

- Instructions :** (1) All questions are compulsory.  
(2) All questions carry equal marks.

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|---|---|----|
| 1 | Explain in detail (with diagram) B form of DNA.                       | 14 |
|   | OR  |    |
| 1 | ( a ) Write a note on supercoiling.                                   | 7  |
|   | ( b ) Explain Chargaff's experiment & its postulates.                 | 7  |
| 2 | ( a ) Short note-Genetic code.  | 7  |
|   | ( b ) Explain briefly - any one operon model.                         | 7  |
|   | OR  |    |
| 2 | Explain with diagram - Transcription in detail.                       | 14 |
| 3 | Explain types of mutation and effects of radiations on it.            | 14 |
|   | OR  |    |
| 3 | ( a ) Write a note on DNA repairs.                                    | 7  |
|   | ( b ) Explain briefly - Transposable elements.                        | 7  |
| 4 | ( a ) Explain - Agarose gel electrophoresis.                          | 7  |
|   | ( b ) Short note on - Vectors.  | 7  |
|   | OR  |    |
| 4 | ( a ) Explain types of restriction endonucleases.                     | 7  |
|   | ( b ) Short note on - Biohazards of genetic engineering.              | 7  |
| 5 | Answer Any 7 :  | 14 |
|   | (1) Give conclusions of Griffith's experiment.                        |    |
|   | (2) Name 2 books specially used/refered mostly for molecular biology. |    |
|   | (3) Define - Hypo and Hyper - chromacity.                             |    |
|   | (4) Draw & labelled - Transcription bubble.                           |    |
|   | (5) Name 2 chemical mutagen & its effects.                            |    |
|   | (6) Write all tools used in genetic engineering.                      |    |
|   | (7) Draw & labelled - Replication fork.                               |    |
|   | (8) Explain - Semi conservative replication briefly.                  |    |
|   | (9) What are promoters? Give uses.                                    |    |
|   | (10) PCR - full form & enzyme used in it.                             |    |
|   | (11) Define translation & what is post transcriptional modification.  |    |
|   | (12) Give 2 medical uses of genetic engineering.                      |    |
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