

**B.Sc. (Bio-Technology) Semester—IV**

**MOLECULAR BIOLOGY**

**Paper—BT-6**

Time Allowed—3 Hours] [Maximum Marks—40

Note :— Attempt *all* the questions of Section A, *five* questions from Section B and *two* questions from Section C.

**SECTION—A**

Explain the following briefly :

1. Z form of DNA.
2. Nucleases.
3. Site specific recombination.
4. Holliday intermediate.
5. Catabolic repression.
6. DNA dependent RNA polymerase.
7. Transcription factors.
8. TATA Box. 1×8=8

**SECTION—B**

1. What is Hershey-Chase experiment ? Explain briefly what information we get from this experiment.

2. Comment on the statement that DNA synthesis is semidiscontinuous.
3. What are insertion elements ? Discuss briefly.
4. Discuss briefly the mechanism of immunoglobulin gene arrangement.
5. Define operon. Explain 'trp' operon.
6. Write a note on the regulation of transcription.
7. Discuss briefly the eukaryotic RNA polymerase.
8. Write a note on DNA methylation. 4×5=20

**SECTION—C**

1. What is DNA polymerase ? Explain the structure and functions of various DNA polymerases.
2. Discuss in detail the molecular mechanism of DNA recombinations.
3. What are nucleosomes ? Discuss in detail its various components.
4. Discuss various steps involved in protein synthesis. 6×2=12