

Exam. Code : 107404

Subject Code : 2146

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 rearrangement.
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