Exam. Code : 107404
Subject Code : 1863

B.Sc. (Biotechnology) 4th Semester
BT–6 : MOLECULAR BIOLOGY

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. Transcription factors
2. Strong and weak promoters
3. Okazaki fragments
4. Z-DNA
5. Episome
6. DNA ligase
7. Conservative model of DNA replication
8. Split genes. 1×8=8

SECTION—B

1. Discuss various resemblances and differences between A-DNA and B-DNA.
2. What is supercoiling ? Discuss its various types and functions.
3. Comment on the statement '*consensus sequences can be mixed and matched in different combinations to yield a functional eukaryotic promotor*'.

4. Explain Theta replication.
5. Draw general structure of Bacterial promoter.
6. How does the process of transcription in eukaryotic cells differ from that in bacterial cells ?
7. Give an experimental setup to demonstrate semiconservative mode of DNA replication.
8. Explain methylation and acetylation of histones.

4×5=20

SECTION—C

1. Write a detailed note on catabolite repression.
2. What is DNA recombination ? Explain Holliday model.
3. Give mechanism of rho-dependent and rho-independent transcription termination in prokaryotes.
4. What is operon ? Explain *his* operon. 6×2=12