

B.Sc. BIOTECHNOLOGY
Fourth Semester
MOLECULAR BIOLOGY
(BBT - 16)

Duration: 3Hrs.

Full Marks: 70

PART A (Objective) =20
PART-B (Descriptive)=50

PART-B (Descriptive)

Duration: 2 hrs. 40 mins.

Marks: 50

1. Answer the following questions (any five):

2×5=10

- a) What is the difference between B-DNA and Z-DNA?
- b) Define spontaneous mutation and induced mutation. Give examples.
- c) What is Shine-Dalgarno sequence? What is its significance?
- d) What are intercalating agents? Give examples.
- e) Define random and site directed mutagenesis.
- f) Define highly repetitive, moderately repetitive and uniquely repetitive DNA.
- g) What is frameshift mutation? How it is caused?

2. Answer the following questions (any five):

3×5=15

- a) Give the basic concept on the secondary structure of DNA.
- b) Explain induced mutation with the help of an example.
- c) What is semi-conservative mode of DNA replication? How is it different from conservative mode of DNA replication?
- d) What is catabolite repression?
- e) Write in brief about Wobble hypothesis.

- f) What are the enzymes involved in prokaryotic DNA replication?
- g) Write in brief about the inhibitors of DNA replication.

3. Answer the following questions (any five):

5×5=25

- a) What are the different classes of RNA? What are the functions? Draw a diagram of tRNA.
- b) What do you mean by gene regulation? Explain with the help of Lac Operon.
- c) How is RNA modified in eukaryotes after transcription? Explain.
- d) Describe the process of transcription in prokaryotes.
- e) Explain Hershey and Chase experiment to prove DNA is the genetic material.
- f) What is the correlation between carcinogenicity and mutagenicity? Explain Ames test.
- g) What are Thymidine dimers? How such kind of mutation can be corrected?
