

Bachelor of Science (B.Sc.) Semester—V Examination
BIOTECHNOLOGY – MOLECULAR BIOLOGY
Optional Paper—1

Time : Three Hours]

[Maximum Marks : 50

Note :—(1) All questions are compulsory and carry equal marks.

(2) Draw diagrams wherever necessary.

1. Write short notes on :

- (a) Temperature sensitive mutants used in Replication studies.
- (b) DNA Helicases.
- (c) Okazaki Fragments.
- (d) Termination of Replication.

2½×4=10

OR

- (e) Importance of β-subunit.
- (f) Single stranded binding proteins.
- (g) Initiation of Replication.
- (h) Topoisomerases.

2½×4=10

2. Write notes on :

- (a) Frame shift mutations.
- (b) Base Excision Repair.

5

5

OR

- (c) Nucleotide Excision Repair.
- (d) Chemical Mutagens.

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3. Write notes on :

- (a) Bacterial promoter.
- (b) Structure of RNA Polymerase.

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OR

- (c) Significance of Sigma factors.
- (d) Promoter Binding and Activation.

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4. Discuss the structure and working of lac operon with diagram.

10

OR

Write notes on :

- (a) Rho dependent termination of transcription.
- (b) Reverse transcription.

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5. Solve any TEN :

- (1) Which bond is formed by DNA ligase ?
- (2) What is primase ?
- (3) What are DNA A boxes ?
- (4) What is missense mutation ?
- (5) How does Mismatch Repair System differentiate between parental and daughter strand ?
- (6) Name any one intercalating agent.
- (7) What is a strong promoter ?
- (8) What is a transcription bubble ?
- (9) What is meant by promoter escape ?
- (10) How many structural genes does the trp operon contain ?
- (11) Who discovered the enzyme Reverse Transcriptase ?
- (12) Define abortive initiation.

1×10=10