

[4]

SECTION 'C' $4 \times 10 = 40$

Long Answer questions (Word limit 400-450 words.)

UNIT-I

Q. 1. Describe the process of DNA replication along with suitable diagrams.

OR

Discuss the mechanisms of DNA repair.

UNIT-II

Q. 2. Describe the concept and technique of restriction mapping.

OR

What do you mean by multigene families? Explain the process of evolution of multigene families.

UNIT-III

Q. 3. Explain the process of gene expression in prokaryotes.

OR

Write an essay on protein targeting to organelles.

UNIT-IV

Q. 4. What are transposable elements? Explain the process of mutation induced by transposons.

OR

Give an account of induced mutation.

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[1]

ROLL NO.....

BOT. 202/21

II SEMESTER EXAMINATION, 2021

M.Sc. (BOTANY)

PAPER-II

MOLECULAR BIOLOGY

TIME: 3 HOURS

MAX.- 80

MIN.- 16

Note: The question paper consists of three sections A, B & C. All questions are compulsory.

Section A- Attempt all multiple choice questions.

Section B- Attempt one question from each unit.

Section C- Attempt one question from each unit.

SECTION 'A' $2 \times 8 = 16$

MCQ (Multiple Choice Questions)

- The number of nucleotide per helix or turn in Z-DNA is -
(a) 10 (b) 11 (c) 12 (d) 13
- Enzyme involved in breakage of hydrogen bond present between two helix of DNA during DNA replication is-
(a) Helicase (b) DNA-topoisomerase
(c) Primase (d) DNA-polymerase-I
- Restriction site of *ECO. RI* enzyme is -
(a) Between G and C (b) Between G and A
(c) Between G and T (d) Between A and CT

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4. Restriction enzyme *EcoRI* from *E. coli* was isolated for the first time by -

- (a) Paul Berg (b) Herbert Boyer
(c) S. Cohen and H. Boyer (d) E.M. Southern

5. Primary control of gene expression takes place at the level of -

- (a) Translation (b) Population
(c) Transcription (d) None

6. The gene sequence that codes for proteins are -

- (a) Exons (b) Introns
(c) Intervening sequence (d) Control regions

7. Robertsonian translocation takes place between -

- (a) Two acentric chromosomes
(b) Two metacentric chromosomes
(c) Two sub metacentric chromosomes
(d) Submetacentric and acrocentric chromosomes

8. Example of base analog is -

- (a) Hydroxyl amine (b) Nitrous acid
(c) 5-ABromouracil (d) Proflavin

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SECTION 'B' 4 × 6 = 24

Short Answer Type Questions (Word limit 200-250 words.)

UNIT-I

Q. 1. What do you mean by transcription? Describe the process of transcription in prokaryotes.

OR

Describe the clover leaf model & tRNA.

UNIT-II

Q. 2. What is micro cloning? Describe its process.

OR

What is C value Paradox? Write the significance of C value paradox.

UNIT-III

Q. 3. Describe cis trans test in detail.

OR

Describe five structure of eukaryotic of introns and its significance.

UNIT-IV

Q. 4. Describe molecular basis of gene mutation.

OR

Write a note on Robertsonian translocation.