

G-2/210/21

Roll No.

M.Sc. II Semester Examination, 2021**BOTANY****Paper II****(Molecular Biology)**

Time : 3 Hours]

[Max. Marks : 80

Note : *All questions are compulsory. Question Paper comprises of 3 sections. Section A is objective type/multiple choice questions with no internal choice. Section B is short answer type with internal choice. Section C is long answer type with internal choice.*

SECTION A**1 × 8 = 8****(Objective Type Questions)***Choose the correct answer :*

- 1.** Which is the form of DNA that contain left handed helical sense and 12 base pair per helical turn ?
 (a) A-DNA (b) H-DNA
 (c) B-DNA (d) Z-DNA
- 2.** Which of the following enzyme does not participate in DNA replication ?
 (a) DNA polymerase (b) DNA Ligase
 (c) Topoisomerase (d) DNA methylase P.T.O.

- 3.** Group of distinctly different genes that often occur together in a cluster are called :
 (a) Single copy genes
 (b) Multigene families
 (c) Segmental duplication
 (d) Tandem Clusters
- 4.** C-Value in genome represents :
 (a) Genetic disorder
 (b) Phenotypic variation
 (c) Amount of DNA present in the genome
 (d) Qualitative traits.
- 5.** Post translational modification of many eukaryotic proteins begins in the :
 (a) Endoplasmic reticulum
 (b) Mitochondria
 (c) Chloroplast (d) Nucleus
- 6.** Which of the following enzymes cleaves lactose to galactose and glucose during Lac-operon :
 (a) β -galactosidase (Z)
 (b) Galactoside permease (r)
 (c) Thiogalactoside transacetylase (A)
 (d) β -Glucuronidases

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7. When the base cytosine undergoes deamination it becomes :

- (a) Uracil (b) Adenine
(c) Guanine (d) Phosphorylated

8. 'Xenoderma Pigmentosa' in human is associated with a mutation in :

- (a) Photoreactivation
(b) Nucleotide excision repair
(c) Base excision repair
(d) Mismatch repair

SECTION B

6 × 4 = 24

(Short Answer Type Questions)

Note : Answer with word limit 250 words.

Unit-I

1. What is lagging strand template ? How lagging strand synthesis occur ?

Or

Describe the mechanism of nucleotide excision repair mechanism in E. coli.

Unit-II

2. Write note on C-Value Paradox.

Or

Write note on Cot curve and its significance.

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P.T.O.

Unit-III

3. Write note on promoter gene and structural gene.

Or

Write note on Introns and their significance.

Unit-IV

4. Write note on Base pair substitution.

Or

Write note on Translocation.

SECTION C

12 × 4 = 48

(Long Answer Type Questions)

Note : Answer with word limit 500 words.

Unit-I

1. Describe different events in transcription in E. coli.

Or

What do you mean by base excision repair ?
How does base excision repair occur ?

Unit-II

2. Describe the principle and working of flow cytometer and its significance in karyotype analysis.

Or

What are the main components of a flow cytometer ? How a flow cytometer works ?

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Unit-III

- 3.** Give an account of regulation of gene expression in prokaryotes.

Or

Describe the mechanism of Protein targeting to endoplasmic reticulum.

Unit-IV

- 4.** What are insertion sequence and transposons ? Describe their general characteristics and the mechanism of their transposition.

Or

Explain the various type and molecular basis of gene mutation.

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