

G-2/201/21

Roll No.....

M.Sc. II Semester Examination, 2021

BIOCHEMISTRY

Paper I

(Genetics and Molecular Biology)

Time : 3 Hours]

[Maximum 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'

(Objective Type/ Multiple Choice Questions)

Choose the correct answer :

1 × 8 = 8

1. What is chromosome walking ?

- (a) Hybridization
- (b) Sequencing technique
- (c) Genetic marker
- (d) Chemical degradation technique

P.T.O.

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2. Name the mapping technique used to determine the position of restriction sites in a DNA molecule.

- (a) Genetic map
- (b) Restriction mapping
- (c) Biochemical markers
- (d) DNA markers

3. Which of the following enzymes adds DNA to the ends to chromosomes to avoid loss of genetic material with duplication ?

- (a) Primase
- (b) Helicase
- (c) Telomerase
- (d) Polymerase

4. Which of the following structure indicates where DNA replication begins ?

- (a) Helicase
- (b) Origin of replication
- (c) DNA polymerase III
- (d) Replication fork

5. Which RNA transcript would be capped by the capping enzymes in vitro mixture of RNA ?

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- (a) Pol II transcripts
(b) Pol I and Pol III transcripts
(c) Pol I transcripts
(d) Pol I, Pol II and Pol III transcripts
6. In an experiment you try to hybridize a DNA single strand with a mature RNA. You observe loops being formed. These loops have
- (a) DNA (b) RNA
(c) Histone octomer (d) Histone H1
7. Which of the following is not a type of post translational modification ?
- (a) Proteolysis (b) Protein folding
(c) Glycosylation (d) Lipid addition
8. Prenylation adds phenyl groups to theamino acid residues.
- (a) Methlonine (b) Cystine
(c) Threonine (d) Arginine

SECTION 'B'

(Short Answer Type Questions)

Note : Answer the following questions in 250 words.

4 × 6 = 24

P.T.O.

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Write short notes on :

1. Alleles **Or** Co-dominance.
2. Fidelity of Replication **Or** Replication Enzymes.
3. RNA Editing **Or** RNA splicing.
4. Aminosylation of *t*-RNA **Or** Proof reading of translation.

SECTION 'C'

4 × 12 = 48

(Long Answer Type Questions)

Note : Answer the following questions in 500 words.

Unit I

1. Describe different methods of genome mapping.

Or

Describe different types of DNA Damage.

Unit II

2. Describe Repair mechanism of DNA.

Or

Describe the types of blotting techniques.

Unit III

3. Explain RNA synthesis with its different steps.

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Or

Describe structure and functions of different types of RNA.

Unit IV

4. Explain mechanism of translation.

Or

Explain protein targeting.

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