

G-2/206/21

Roll No.....

## M.Sc. II Semester Examination, 2021

BIOTECHNOLOGY

### Paper II

(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. Which of the following enzyme remove super coiling in replicating DNA ahead of the replication ?

- (a) DNA polymerases
- (b) Helicases
- (c) Primases
- (d) Topoisomerases

P.T.O.

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2. Nucleosome is made up of :

- (a) DNA, histone core protein
- (b) DNA, histone core protein linker H<sub>1</sub>
- (c) RNA, histone core protein
- (d) RNA, histone core protein, linker H<sub>1</sub>

3. Which of the following ensure stable binding of RNA polymerase at the promoter site ?

- (a) DNA photolyase      (b) Sigma factor
- (c) DNA glycosylase      (d) Rec A

4. The 3' end of an intron is marked by :

- (a) Donar site                      (b) Acceptor site
- (c) AT rich site                      (d) Branch point site

5. Site in the ribosome from which the tRNA donates amino acid to the growing polypeptide chain is :

- (a) P site                              (b) O side
- (c) A site                              (d) T site

6. Which of the following is not an example of Post-translation modification ?

- (a) Covalent modification

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(b) Allosteric modification

(c) Gamma carboxylation

(d) Trimming

7. Programmed cell death is termed as :

(a) Metastasis

(b) Apoptosis

(c) Proliferation

(d) Mitotic termination

8. Which membrane is used in blotting ?

(a) Agarose

(b) Sucrose

(c) Polythene

(d) Nylon

**SECTION 'B'**

**6 × 4 = 24**

**(Short Answer Type Questions)**

**Note :** Answer the following questions in 250 words.

Unit I

1. Explain about structure of RNA.

Or

Write the structure and function of DNA polymerase III.

Unit II

2. Explain polyadenylation process.

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**P.T.O.**

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Or

Discuss about RNA polymerase enzyme.

Unit III

3. Discuss about translation factors.

Or

Write note on protein import into mitochondria.

Unit IV

4. Explain about genomic library.

Or

Explain about DNA chip.

**SECTION 'C'**

**12 × 4 = 48**

**(Long Answer Type Questions)**

**Note :** Answer the following questions in 500 words.

Unit I

1. Explain about DNA replication mechanism.

Or

Discuss about DNA hybridization.

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Unit II

2. Explain in detail about post translational modification.

Or

Explain about ribozyme technology.

Unit III

3. Discuss about protein synthesis.

Or

Describe about synthesis of secretory and membrane protein.

Unit IV

4. Explain about oncogene and tumour suppressor gene.

Or

Discuss about genetic and physical map.

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