G-3/301/21 Roll No.....

M.Sc. III Semester Examination, April-2021

BIOCHEMISTRY

Paper I

(Genetic Engineering)

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' **1×8=8**

(Multiple Type Questions)

Choose the correct answer :

1. Which of the following enzyme is called scissors of Genetic Engineering :

(a) Restriction Endonuclease II

(b) Methylase

(c) Restriction Endonuclease-III

(d) Ligase

Or

Explain the role of molecular scissors in recombinant technique.

2. What is Replica plating Methods ?

Or

Define Role of Vector in genetic engineering.

3. Purification of recombinant protein.

Or

Difference between Gene knockout and knockdown techniques.

4. Function of Ti Vector.

Or

Explain biolistics method.

SECTION 'C' **12×4=48**

(Long Answer Type Questions)

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

1. Principle of gene cloning and explain major step involved in cloning.

6. The use of Insuline hormone to purify its receptor is example of :

(a) Affinity Chromatography

(b) Ion exchange Chromatography

(c) Ligand Mediated Chromatography

(d) Gel filtration Chromatography

7. Vir genes required for the T DNA transfer and processing are located :

(a) On T-DNA (b) Outside the T-DNA

(c) On the plant genome (d) None of these

8. Liposome mediated gene transfer in plants involved :

(a) Plasmid DNA inclosed in a lipid bags

(b) Fusion of liposomes with protoplast

(c) Use of polyethylene glycol

(d) All of above

SECTION 'B' **4×6=24**

(Short Answer Type Questions)

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

1. Principle of Sanger's sequencing method and its four basic component.

2. Dedeoxy nucleotides are used in which of the following DNA sequencing methods ?

(a) Sanger's Method

(b) Maxum Gillbert method

(c) Both of these

(d) None of these

3. Which of the following selectable markers are used in $P^{BR\ 322}$:

(a) Tetracycline resistance gene

(b) Ampiciline Resistance gene

(c) Both of these

(d) None of these

4. Thymine hexamer are used in :

(a) c DNA formation (b) Gene cloning

(c) PCR (d) Mutagenesis

5. Which of the following detergent is commonly used to release integral protein from membrane ?

(a) Triton X-100

(b) Dimethyl sulphate

(c) Urea

(d) Ammonium par sulphate

Or

Gel Electrophoresis, principle, types and applications

2. Explain about Gubler-Hoffman method and importance.

Or

Characteristics of cloning vectors, type and importance.

3. Describe protein refolding and characterization method of recombinant proteins.

Or

Explain about mutagenesis, types, and effects.

4. Describe hairy root transformation methods.

Or

(a) Importance of virulence gene.

(b) Characteristics of Genetic marker.

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