

G-4/401/21

Roll No.

M.Sc. IV Semester Examination, 2021**BIOCHEMISTRY****Paper I****(Plant Biotechnology)**

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. The pair of hormones require for a callus to differentiate are :
 (a) Ethylene and auxin
 (b) Auxin and cytokinin
 (c) Auxin and abscissic acid
 (d) Cytokinin and gibberellin
2. Which of the following is not the basic component of plant tissue culture media ?
 (a) Complex mixture of salts

P.T.O.

(b) Amino acids

(c) Serum albumin

(d) Sugar/Sucrose

3. What is Dimethyl sulphoxide used for ?

(a) Cryoprotectant (b) A gelling agent

(c) Chelating agent (d) An alkylating agent

4. Synthetic seeds are produced by the encapsulation of somatic embryos with :

(a) Sodium acetate (b) Sodium nitrate

(c) Sodium chloride (d) Sodium alginate

5. Agrobacterium tumefaciens is :

(a) Fungi (b) Virus

(c) Protozoa (d) None of these

6. method uses high voltage electrical impulses for gene transfer.

(a) Liposome fusion (b) Microinjective

(c) Electroporation (d) Silicon Carbide fibres

7. The production of secondary metabolites require the use of :

(a) Meristem (b) Protoplast

(c) Axillary buds (d) Cell suspension

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8. RFLP is used to :

- (a) Construct high resolution linkage maps
- (b) Identify single gene diseases
- (c) Construct other maps
- (d) All of these

SECTION B

6×4=24

(Short Answer Type Questions)

Note : Attempt one question from each unit.

Unit-I

1. Write short note on :

Single cell clones

Or

Production of virus free plants.

Unit-II

2. Write short note on :

Anther culture

Or

Cryopreservation

Unit-III

3. Write short note on :

Features of Ti plasmid

Or

Bt genes and application.

Unit-IV

4. Write short note on :

Biodegradable plastics

Or

Linkage analysis

SECTION C

12×4=48

(Long Answer Type Questions)

Note : Attempt one question from each unit.

Unit-I

1. Describe process and application of somatic embryogenesis.

Or

Describe composition and preparation of tissue culture media.

Unit-II

2. Describe the process of isolation of protoplast, its culture and application.

Or

Give an account of chloroplast transformation and its application.

Unit-III

- 3.** Give an account of methods of direct DNA transfer.

Or

Describe the mechanism of Agrobacterium mediated plant transformation.

Unit-IV

- 4.** Give a detailed account of production of plant secondary metabolite.

Or

Give an account of plant molecular markers and their characteristics.

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