

G-3/352/22

Roll No.

III Semester Examination, January 2022

M.Sc.

BIOTECHNOLOGY

Paper II

(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/Multiple Choice Questions)

Choose the correct answer :

1. Calcium used in nutrition media is the main component of part of plant cell.
 - (a) Mitochondria
 - (b) Endoplasmic Reticulum
 - (c) Golgi Bodies
 - (d) Cell wall and cell membrane

P.T.O.

2. What is/are the benefits of micropropagation or clonal propagation ?
 - (a) Rapid Multiplication of superior clone
 - (b) Multiplication of diseased free plants
 - (c) Multiplication of sexually derived sterile hybrids
 - (d) All of the above
3. Rapid freezing method of cryopreservation is done at °C/min.
 - (a) – 100 to – 1000 (b) – 200 to – 1000
 - (c) – 300 to – 1000 (d) – 400 to – 1000
4. Which one of the following technique is mostly confined to protoplast that can be regenerated to viable plants ?
 - (a) Electroporation (b) Biolistic method
 - (c) Microinjection (d) Silicon carbide fibres
5. Microprojectile method of gene transfer in plants involves delivery of DNA :
 - (a) With the help of micromanipulator
 - (b) With the help of Biolistics
 - (c) With the help of needles
 - (d) Any of the above

6. Vir gene required for the T-DNA transfers and processing are located :
 - (a) On the T-DNA
 - (b) Outside the T-DNA region
 - (c) On the plant genome
 - (d) None of the above
7. RELP involves :
 - (a) Used to identify specific protein
 - (b) Used to identify specific DNA
 - (c) Used to identify specific RNA
 - (d) Used to identify both DNA & RNA
8. Which of the following is not a characteristic of a transgenic crop ?
 - (a) Herbicide Resistance
 - (b) Bt insect resistance toxin
 - (c) Increased methionine content
 - (d) None of the above

SECTION B**4×6=24****(Short Answer Type Questions)****Note : Answer the following questions in 250 words.****Unit-I**

1. Define Callus. Explain the types of callus.

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Or

Write a note on Embryorescue.

Unit-II

2. Write about symmetric and asymmetric hybrids.

Or

Comment on DNA banking for germplasm.

Unit-III

3. Write a note on Binary vectors.

Or

Explain the gene silencing.

Unit-IV

4. Comment on green home technology.

Or

Write a note one RAPD marker.

SECTION C

12×4=48

(Long Answer Type Questions)

Note : Answer the following questions in 500 words.

Unit-I

1. Describe the basic step in plant tissue culture.

Or

Write a note on plant tissue culture media.

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Unit-II

2. What is Cryopreservation ? Write down the steps involved in cryopreservation.

Or

Write a note on chloroplast and mitochondrial transformation.

Unit-III

3. Describe any *two* methods of Direct gene transformation in plant.

Or

Explain viral vectors and their application.

Unit-IV

4. What are genetically modified crops ? Discuss any *two* genetically modified crops in detail.

Or

Write an essay on edible vaccines.

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