H-4/01/22

Roll No. .....

IV Semester Examination, 2022

M.Sc.

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/Multiple Type Questions)

Choose the correct answer :

1. Auxin promotes differentiation of .....

(a) Root (b) Shoot

(c) Callus (d) Apicalmeristem

2. Which of the following are most common explant ?

(a) Root (b) Stem

(c) Leaf (d) Bark

P.T.O.

3. Which of the following gives haploid plants ?

(a) Root induction (b) Pollen culture

(c) Seed germination (d) Callus differentiation

4. Which of the following can be used as cryoprotectant ?

(a) $CaCl_2$

(b) Acetic acid

(c) Dimethyl sulphoxide

(d) Ethylene oxide

5. Which of the following are commonly used for genetic transformation of plants ?

(a) *E-coli* (b) *Salmonella* sp

(c) *Agrobacterium* sp (d) *Mycobacterium* sp

6. Incorporation of *Bt* gene add which type of character ?

(a) Salt resistance

(b) Insect resistance

(c) High chloroplast content

(d) Virus resistance

7. Which of the following can be used as indecator marker ?

(a) AFLP (b) TATA Box

(c) Tag polymerase (d) Deoxyribose

8. What is SSCP ?

(a) Sense strand contig protein

(b) Single strand continuous protein

(c) Sense strand conformational polymorphism

(d) Single strand conformational polymorphism

SECTION B **6×4=24**

(Short Answer Type Questions)

Unit-I

1. Write short note on shoot tip culture.

Or

Write short note on suspension culture.

Unit-II

2. Write short note on vectors.

Or

Write short note on cybrids.

Unit-III

3. Write short note on insect resistances.

Or

Write short note on microinjection.

Unit-IV

4. Write short note on edible vaccines.

Or

Write short note on linkage analysis.

SECTION C **12×4=48**

(Long Answer Type Questions)

Unit-I

1. Describe various methods of organogensis in detail.

Or

Describe strategies for production of virus free plants.

Unit-II

2. Discuss the methods for isolation of protoplast. Discuss the benefits of protoplast isolation.

Or

What is germplasm conservation ? Discuss various strategies for germ plasm conservation of plants.

Unit-III

3. Discuss various strategies for transfer of foreign DNA in host plants. Describe micro infection in detail.

Or

What are different approaches for making a plant pathogen and post-resistant ? Describe the approaches for making insect-resistance in plants.

Unit-IV

4. Discuss the production of therapeutic proteins in plants with special emphasis on antibodies.

Or

What are different approaches of molecular marker assisted selection ? Describe the merit and demerit of different molecular marker.

★ ★ ★ ★ ★ ★ c ★ ★ ★ ★ ★