

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2024
(Sixth Semester)

Branch – BIOTECHNOLOGY

**DISCIPLINE SPECIFIC ELECTIVE – II: PLANT TISSUE CULTURE AND
TRANSGENIC TECHNOLOGY**

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (5 x 1 = 5)

- 1 The ability of a single cell to divide and differentiate into an entire organism is called _____.
(i) Unipotency (ii) Pluripotency
(iii) Multipotency (iv) Totipotency
- 2 Which of the following is not a plant growth regulator?
(i) Abscisic acid (ii) Polyphenols
(iii) Cytokinin (iv) Auxin
- 3 Hairy root cultures for secondary metabolite production are induced by transforming plant cells with _____.
(i) Virus (ii) *Agrobacterium rhizogenes*
(iii) *Agrobacterium tumefaciens* (iv) *Bacillus thuringiensis*
- 4 Which of the following growth regulators are produced by TDNA of *Agrobacterium*?
(i) Jasmonic acid (ii) Salicylic acid
(iii) Cytokinin (iv) Cytokinin and Auxin
- 5 Which of the following is the first transgenic crop?
(i) Maize (ii) Tobacco
(iii) Paddy (iv) Cotton

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 3 = 15)

- 6 a. Mention the Hormones used in Plant Tissue Culture and state their functions.
OR
b. What are Artificial Seeds? State its importance.
- 7 a. State the Importance of Germplasm Conservation and how it is done.
OR
b. What is *In-Vitro* Pollination? State its importance.
- 8 a. What are Somaclonal Variations? How they are important in Tissue culture?
OR
b. What is Hairy Root Culture? How they are induced?

Cont...

- 9 a. What are Plantibodies? How they are produced and state its applications.
OR
b. Write short note on Vectors used for Gene Transformation.
- 10 a. What is Marker Assisted selection? Enlist the methods used for the same.
OR
b. Write short note on Genetically Modified Crops.

SECTION -C (30 Marks)

Answer **ALL** questions
ALL questions carry **EQUAL** Marks (5 x 6 = 30)

- 11 a. Describe the Various types of media used in Plant Tissue Culture.
OR
b. Mention the methods and conditions for maintenance of Callus and Suspension cultures.
- 12 a. State the important functions of Anther and Embryo Culture.
OR
b. Describe the method of Somatic hybridization and Selection of Hybrids.
- 13 a. Describe the methods for production of Secondary metabolites from Cell cultures.
OR
b. Describe the micropropagation methods for Virus elimination.
- 14 a. Discuss about Agrobacterium mediated Gene transformation in plants.
OR
b. Discuss about the production of useful proteins in Plants.
- 15 a. Discuss how pest resistant crops are produced. Give three examples.
OR
b. Discuss methods for Engineering Herbicide resistant Plants.

Z-Z-Z

END