

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2024  
(Sixth Semester)

Branch – BOTANY

**DISCIPLINE SPECIFIC ELECTIVE – II: PLANT TISSUE CULTURE**

Time: Three Hours

Maximum: 50 Marks

**SECTION-A (5 Marks)**

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

- 1 Embryo culture is used for
  - (i) Establishing suspension culture
  - (ii) Recovery of inter specific hybrids
  - (iii) Somatic hybridization
  - (iv) Haploid production
- 2 \_\_\_\_\_ is a gaseous plant hormone.
  - (i) IBA
  - (ii) Ethylene
  - (iii) Abscisic acid
  - (iv) NAA
- 3 Synthetic seeds is produced by encapsulating somatic embryo with
  - (i) sodium chloride
  - (ii) sodium alginate
  - (iii) sodium acetate
  - (iv) sodium nitrate
- 4 Find out the enzymes required to obtain wall-free / naked protoplasts are
  - (i) Cellulase and proteinase
  - (ii) Cellulase and pectinase
  - (iii) Cellulase and amylase
  - (iv) Amylase and pectinase
- 5 Which one of the following is used for the production of secondary metabolites?
  - (i) protoplast
  - (ii) cell suspension culture
  - (iii) meristem
  - (iv) auxillary buds

**SECTION - B (15 Marks)**

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a How would you prepare the MS medium for plant tissue culture?  
OR
- b Analyze the different methods of sterilization used in tissue culture laboratory.
- 7 a Show the commercial applications of Ethylene.  
OR
- b Narrate the discovery of Gibberellins.
- 8 a Examine the different stages of micropropagation and its advantages.  
OR
- b Summarize the procedure for suspension culture.

Cont...

9 a Comment on Cybrids.

OR

b Describe the steps involved in the production of haploid plants through anther culture.

10 a Define cell immobilization. Point out the practical applications of cell immobilization.

OR

b State the significance of hairy root culture.

**SECTION - C (30 Marks)**

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

11 a Highlight the steps involved in embryo culture.

OR

b How will you organize a plant tissue culture laboratory?

12 a Elaborate the bioassay and commercial applications of Auxins.

OR

b Discover the role of plant growth regulators in plant tissue culture.

13 a Elucidate the production method of synthetic seeds.

OR

b Summarize the events occur in on somatic embryogenesis.

14 a Explain how will you isolate protoplast from plant tissue? Add a note on its fusion.

OR

b Infer the applications of plant tissue culture in agriculture and forestry.

15 a Describe the protocols for commercial production of Banana.

OR

b Categorize the various steps involved in the production of secondary metabolites.

Z-Z-Z

END