18BOU26A

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2023
(Sixth Semester)

Branch – **BOTANY**

DISCIPLINE SPECIFIC ELECTIVE COURSE – II PLANT TISSUE CULTURE

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks (10 x 1 = 10)

1 The ability of the component cells of callus to form a whole plant is known as.
(i) redifferentiation (ii) dedifferentiation
(iii) either (a) or (b) (iv) none of these

2 Plant tissue culture technique is a redefined method of _____.
(i) Hybridization (ii) Vegetative propagation
(iii) Asexual reproduction (iv) selection

3 Indole-3-acetic acid is the most common naturally occurring plant hormone of _____ class.
(i) Gibberellin (ii) Auxin
(iii) Ethylene (iv) Cytokinin

4 _____ is a gaseous plant hormone.
(i) IBA (ii) Ethylene
(iii) Abscisic acid (iv) NAA

5 Synthetic seeds is produced by encapsulating somatic embryo with.
(i) sodium chloride (ii) sodium alginate
(iii) sodium acetate (iv) sodium nitrate

6 In plant tissue culture, what is the term Organogenesis means?
(i) Formation of callus culture
(ii)Formation of root & shoot from callus culture
(iii) Genesis of organ
(iv) None of the above

7 Which breeding method uses a chemical to strip the cell wall of plant cells of two sexually incompatible species?
(i) Mass selection (ii) Protoplast fusion
(iii) Transformation (iv) Transpiration

8 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

9 Tissue culture is a good technique to.
(i) Cross two varieties
(ii) Rapidly increase the size of a trees by strengthening the stem
(iii) Eliminate virus
(iv) Improve yield of crops

10 The production of secondary metabolites require the use of.
(i) protoplast (ii) cell suspension culture
(iii) meristem (iv) auxillary buds

Cont...

SECTION - B (35 Marks)

Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks (5 x 7 = 35)

11 a How would you prepare the MS medium for plant tissue culture?

OR

b High light the steps involved in embryo culture.

12 a Assess the role of plant growth regulators in plant tissue culture.

OR

b Examine the chemical nature and commercial applications of Cytokinins.

13 a Summarize the event of somatic embryogenesis.

OR

b Describe the production method of synthetic seeds.

14 a Briefly explain the production of haploid plants and their application.

OR

b Give a brief note on cybrids and its uses.

15 a Elucidate the steps for the production of secondary metabolites.

OR

b Enlist the practical applications of plant tissue culture.

SECTION - C (30 Marks)

Answer any **THREE** Questions
ALL Questions Carry **EQUAL** Marks (3 x 10 = 30)

16 Write an account of plant tissue culture laboratory organization.

17 Analyze the bioassay, mode of action and commercial applications of Auxins.

18 Describe the stages of micropropagation and its applications.

19 How will you isolate protoplast from plant tissue? Add a note on its fusion.

20 Describe the protocols for commercial production of Banana.

Z-Z-Z END