



**Avinashilingam Institute for Home Science and Higher Education for Women**  
(Deemed to be University under Category 'A' by MHRD, Estd. u/s 3 of UGC Act 1956)  
Re-accredited with 'A+' Grade by NAAC. Recognised by UGC Under Section 12B  
Coimbatore - 641 043, Tamil Nadu, India

**Bachelor's Degree Examination – January 2021**  
**V Semester**

**Class : III UG**  
**Major : Biochemistry and Biotechnology**

**Time : 3 Hours**  
**Max. Marks: 100**

**18BBTC11 Plant Biotechnology**

**Part A**  
**Choose the Correct Answer**

**10 x 1 = 10**

- Father of Plant Tissue Culture is  
a. Haberlandt  
b. Hauberlaundt  
c. Hengerhitsch  
d. Skoog
- Thiodiazuron (TDZ) can be used in place of  
a. cytokinin  
b. auxin  
c. gibberellins  
d. abscisic acid
- Carbohydrates can maintain \_\_\_\_\_ in the culture medium  
a. osmolarity  
b. osmolality  
c. density gradient  
d. pH and osmolality
- Tomato juice, coconut water and other natural sources enhance  
a. embryo culture  
b. callus induction  
c. meristem culture  
d. artificial seed coat
- Chromosomal \_\_\_\_\_ leads to somoclonal variation.  
a. variation  
b. aberration  
c. deletion  
d. duplication
- Fusion of two cells produces a  
a. nucleofusion  
b. cybrid  
c. somatic hybrid  
d. heterokaryon
- Daffodil genes are incorporated into which plant to produce transgenic nature?  
a. Ornamental flowers  
b. maize  
c. rice  
d. coloring pigment
- \_\_\_\_\_ is used to remove chlorophyll pigments from plant extracts  
a. Hexane  
b. Acetyl alcohol  
c. Formalin  
d. Methanol
- \_\_\_\_\_ is produced in response to stress.  
a. osmolytes  
b. osmosis  
c. osmolarity  
d. osmocytosis
- Weed detoxification is carried out by  
a. CYP 450 mono-oxygenase  
b. CYP450A1 oxygenase  
c. Bromilase  
d. Bromilase1A

**Part B**

**5 x 6 = 30**

**Answer ALL questions**

**Each answer should not exceed 400 words or two pages**

- 11.a. State the properties of micro and macro elements in media for plant tissue culture.  
(or)
- 11.b. Illustrate the steps involved in embryogenesis and label.
- 12.a. What are the differences between floriculture and horticulture.  
(or)
- 12.b. Explain haploid production and give a diagrammatic representation.
- 13.a. What are secondary metabolites. Explain with examples.  
(or)
- 13.b. Highlight your understanding on biotransformation.
- 14.a. What is the role of micropropagation.  
(or)
- 14.b. Give the details of immobilized cells.
- 15.a. Write a note on cryopreservation.  
(or)
- 15.b. Elaborate on transgenic plants.

**Part C**

**5 x 12 = 60**

**Answer ALL questions**

**Each answer should not exceed 800 words or fourpages**

- 16.a. Elaborate on the plant tissue culture medium and its characteristics on plant growth.  
(or)
- 16.b. Given an account on the commercialization of plants.
- 17.a. Summarize the different types of micropropagation.  
(or)
- 17.b. Report on the various challenges in propagation of trees.
- 18.a. Highlight on production of secondary metabolites using cell culture.  
(or)
- 18.b. Discuss the design for a typical plant tissue culture lab.
- 19.a. Enumerate plant transformation vectors with examples.  
(or)
- 19.b. Discuss ethical issues in plant genetic engineering.
- 20.a. Write an account on virus and pest resistant plants developed by genetic engineering.  
(or)
- 20.b. Explain the physical methods of transformation in plant cells.

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