

SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN  
(AUTONOMOUS)

(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)  
Chromepet, Chennai - 600 044.

M.Sc.PBPBT - END SEMESTER EXAMINATIONS - NOV' 2024  
SEMESTER - III

**20PPBCT3008 - Plant Tissue Culture**

Total Duration : 2 Hrs. 30 Mins.

Total Marks : 60

**Section B**

Answer any **SIX** questions ( $6 \times 5 = 30$  Marks)

1. Explain the steps involved in sterilizing explants to prevent microbial contamination in plant tissue culture.
2. Describe the role of plant growth regulators in callus induction.
3. Compute the advantages of using suspension cultures over solid media for large-scale production of plant secondary metabolites.
4. Interpret the role of meristem culture in the production of disease-free plants, and how does it contribute to crop improvement.
5. What are the primary roles of auxins in plant tissue culture, and how do they influence cell differentiation and organogenesis?
6. Classify the types of explants used in plant tissue culture, and how do they influence the success of the culture?
7. Illustrate the steps involved in somatic cell hybridization.
8. Protoplasts be induced to differentiate into whole plant-Justify.

**Section C**

I - Answer any **TWO** questions ( $2 \times 10 = 20$  Marks)

9. Show how can a commercial tissue culture facility be designed to scale production efficiently?
10. Classify the types of culture media used for *in vitro* plant propagation.
11. Determine the different stages of micropropagation, and how do they contribute to plant development?
12. Assess the key steps involved in initiating an embryogenic culture.

II - Compulsory question ( $1 \times 10 = 10$  Marks)

13. Evaluate the use of plant cell culture techniques be utilized to produce high-value secondary metabolites in crops.

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