



Name : .....

Roll No. : .....

Invigilator's Signature : .....

**CS/B.Sc (H) BT/GE/MICRO/MOL/SEM-3/PAT-303/2011-12**

**2011**

**PLANT & ANIMAL TISSUE CULTURE  
TECHNIQUES & APPLICATION**

Time Allotted : 3 Hours

Full Marks : 70

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

**GROUP – A**

**( Multiple Choice Type Questions )**

1. Choose the correct alternatives for any *ten* of the following : 10 × 1 = 10
- i) Which one is not an example of auxin ?
    - a) 2, 4-dichlorophenoxy acetic acid
    - b) Picloram
    - c) Indole butyric acid
    - d) Any of these.
  - ii) Which of the following is not an example of chemical sterilizer ?
    - a) 1% solution of sodium chloride
    - b) 1% solution of bromine water
    - c) 1% solution of silver nitrate
    - d) None of these.



- iii) Virus free plant can be made through
- somatic embryogenesis method
  - anther culture
  - meristem culture
  - none of these.
- iv) The rapid clonal propagation of plants known as
- proliferation
  - micropropagation
  - optimization of culture
  - somatic embryogenesis.
- v) Cellular totipotency is present in
- plant cells
  - animal cells
  - plant and animal cells
  - neither plant cells nor animal cells.
- vi) One of the macronutrient normally used in plant culture medium is
- |                |              |
|----------------|--------------|
| a) Myoinositol | b) Glycine   |
| c) Sucrose     | d) Nitrogen. |
- vii) Coconut milk is
- |                     |            |
|---------------------|------------|
| a) liquid endosperm | b) seed    |
| c) ovule            | d) embryo. |
- viii) Which of the following is used as a growth regulator in plant culture medium ?
- |                      |              |
|----------------------|--------------|
| a) Mercuric chloride | b) BAP       |
| c) Sucrose           | d) Tween 20. |
- ix) Calcium dependent cell adhesion molecule is
- |             |             |
|-------------|-------------|
| a) tubulin  | b) citrulin |
| c) cadherin | d) benzene. |





**GROUP – C**

**( Long Answer Type Questions )**

Answer any *three* of the following.  $3 \times 15 = 45$

7. Describe the cell growth pattern in suspension culture in case of plant cell. Explain the basic difference between closed and open continuous culture. Describe the techniques to estimate the cell growth in cell suspension culture. What are macro-and micro-nutrient ?  $4 + 4 + 3 + 4$
8. Differentiate 'monoclonal' and 'polyclonal' antibodies. Discuss the principle and method of producing monoclonal antibodies. Discuss the basis of hybrid cell selection in 'HAT' medium during monoclonal antibody production.  $2 + 2 + 4 + 7$
9. What is microporpagation ? Describe different stages of micropropagation in detail. What are the benefits and application of micropropagation ?  $2 + 7 + 6$
10. Define totipotency. Define organ culture in plants. Name different types of organ culture in plants. What are the different carbon sources used in plant tissue culture medium ? Briefly mention the action of growth regulators in plant tissue culture with special mention to somatic embryogenesis.  $2 + 2 + 3 + 2 + 6$
11. What are the differences between plant zygotic embryo and somatic embryo ? Define single cell culture. Describe in brief single cell isolation techniques. Describe in brief the method and importance of haploid culture.  $3 + 4 + 5 + 3$