

H-6641

M.Sc. (IV Semester) Examination, 2022

BOTANY

Paper – I

(*In vitro* technologies and industrial application)

Time Allowed: Three Hours

Maximum Marks: 70

Section-A

Note:- Attempt any ten questions. Each question carries one mark.

Q.I. Objective Type Questions 1x10

1. The ability of plant cells to divide and produce all types of cells is called.....
2. An example of cryoprotectant is.....
3. The hormone responsible for apical dominance is is.....
4. The phenolic compound present in tea is.....

(2)

5. Secondary metabolite that acts as anti-cancer drug is
6. Preserving germplasm in frozen state is called.....
7. Plants genetically identical to the original plant
 - a) Somaclones
 - b) Clones
 - c) Transgenic plants
 - d) None of the above
8. Who is known as father of plant tissue culture technique?
 - a) Darwin
 - b) Bonner
 - c) Guatheret
 - d) Haberlandth
9. The production of secondary metabolites requires the use of:
 - a) Protoplast
 - b) Meristem
 - c) Explant
 - d) Auxiliary Buds
10. NBRI stands for:
 - a) National Botanical Research Institute
 - b) National Brain Research Institute
 - c) National Biological Research Institute
 - d) None of the above
11. In plant tissue culture the main effect of cytokines is the formation of advantageous roots. **(State whether true or false)**
12. Tannins are aromatic compounds. **(State whether true or false)**

(3)

Section-B

Note:- Attempt any five questions. Each question carries two marks.

Q. II. Very Short Answer Type (25-30 Words) 2x5

1. What is meant by bioreactor?
2. Define micropropagation.
3. What are tannins?
4. What is meant by somaclonal variations?
5. What are micronutrients?
6. Define sterilization.
7. Write two major functions of auxins?

Section-C

Note:- Attempt any five questions. Each question carries four marks.

Q.III. Short Answer Type (250 Words) 4x5

1. Give a brief account on components of plant tissue culture medium.
2. Describe the role of mycorrhiza in plant growth promotion.
3. Give a brief account on germplasm conservation using *in-vitro* techniques.

(4)

4. Discuss the role of growth regulators in differentiation in *in-vitro* condition.
5. Describe the role of biotechnology in establishment of economically important traits in agricultural crops.
6. Discuss the factors affecting hardening.
7. Give a brief account on epigenetic variations with examples.

Section-D

Note:- Attempt any three questions. Each question carries ten marks.

Q.IV. Essay type (more than 500 Words) 3x10

1. Give a detailed account on approaches of micropropagation via embryogenesis and organogenesis.
2. Discuss the production of virus free plants via meristem culture in fruit trees.
3. What are the common contaminants in plant tissue culture? How can one reduce the problem of contamination?
4. What are secondary metabolites? Explain the importance of secondary metabolites.