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**M – 1794**

**Reg. No. : .....**

**Name : .....**

**Fifth Semester B.Sc. Degree Examination, December 2021**

**Career Related First Degree Programme under CBCSS**

**Group 2(a) Botany and Biotechnology**

**BB 1572 : PLANT BIOTECHNOLOGY**

**(2016 & 2017 Admission)**

Time : 3 Hours

Max. Marks : 80

**SECTION – A**

Answer **all** questions in a word or **one** or **two** sentences. Each question carries **1** mark.

1. What are cytokinins? Give one example.
2. Name any two methods of protoplast isolation.
3. Define edible vaccines.
4. Who is known as the father of plant tissue culture?
5. What is meant by surface sterilization?
6. Define biopharming.
7. What are HEPA filters?
8. What is the role of *Agrobacterium tumefaciens* in genetic engineering?
9. What is meant by somaclonal variation?
10. Define biotechnology.

**(10 × 1 = 10 Marks)**

P.T.O.

## SECTION – B

Answer **any eight** questions. Each question carries **2** marks. (Answer not to exceed **one** paragraph).

11. What is fusanogen? Give any two examples.
12. How are virus free plants produced through tissue culture?
13. Differentiate between differentiation from dedifferentiation.
14. Differentiate caulogenesis from rhizogenesis.
15. Mention any two advantages of immobilization of culture cells.
16. Write a short note on laminar air flow cabinet.
17. What is mean by organ culture? What is its importance?
18. Write short notes on biotransformation.
19. Mention the methods of producing haploid plants.
20. What are the major ingredients of plant tissue culture media?
21. Mention any two pharmaceutically important secondary metabolites and its sources.
22. List out the enzymes which are used as tools in genetic engineering.

**(8 × 2 = 16 Marks)**

## SECTION – C

Answer **any six** questions. Each questions carries **4** marks (Answer should not exceed **120** words).

23. What are the advantages of suspension culture over callus culture?
24. Explain the factors influencing organogenesis?

25. What is meant by hairy root culture? What are its applications?
26. Explain the stages of micropropagation? What is its significance?
27. Explain the importance and impacts of transgenic plants.
28. Write notes on the *in vitro* preservation of germplasm.
29. Differentiate between hybrids from cybrids. How they are produced?
30. Differentiate between direct embryogenesis from indirect embryogenesis.
31. Describe the applications of genetic engineering.

**(6 × 4 = 24 Marks)**

#### SECTION – D

Answer **any two** questions. Each questions carries **15** marks (answers not to exceed **3** pages)

32. Write an essay on the methods and application of plant tissue culture.
33. What are the different gene transfer methods adopted in plants? Explain them in detail.
34. Explain in details on the isolation and culturing of protoplasts. What are the applications of protoplast culture?
35. Write an essay on the scope of plant secondary metabolites production through plant cell, tissue and organ culture.

**(2 × 15 = 30 Marks)**