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Reg. No. :

Name :

Fifth Semester B.Sc. Degree Examination, December 2022

Career Related First Degree Programme under CBCSS

Group 2(a) : Botany and Biotechnology

BB 1572 : PLANT BIOTECHNOLOGY

(2019 Admission Onwards)

Time : 3 Hours

Max. Marks : 80

SECTION – A

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

1. Define totipotency.
2. What is surface sterilization?
3. What are androgenic haploids?
4. What is rhizogenesis?
5. Name any two hydrogels used for encapsulation of artificial seeds.
6. What is somatic hybridization?
7. Define lipofection.
8. What is a particle gun?
9. Which gene is used in the production of Roundup herbicide resistant plant?
10. What are reporter genes?

(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 a chemically undefined medium in tissue culture?
12. Define callus and suspension culture.
13. Differentiate scoreable marker from selectable marker.
14. What are cybrids?
15. Name two auxins and cytokinins used in plant tissue culture.
16. What are binary vectors?
17. Define electroporation.
18. What is a HEPA filter?
19. List the advantages of micropropagation.
20. What is 'Cry' protein?
21. What is terminator technology?
22. Comment on biopharming.
23. What is disarming of Ti plasmid?
24. What are artificial seeds?
25. How direct embryogenesis is different from indirect embryogenesis?
26. Differentiate between batch and continuous culture.

(8 × 2 = 16 Marks)

SECTION – C

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

27. Comment on various sterilization methods employed in tissue culture.
28. Discuss the organization of a plant tissue culture.
29. Explain different methods of protoplast fusion.
30. How protoplasts were isolated?
31. What are the applications of *in vitro* culture?
32. Add a note on hairy root formation and its applications.
33. Briefly explain various methods of gene transfer in plants.
34. List the applications of *Agrobacterium* in plant genetic engineering.
35. Give an account on virus-mediated gene transfer techniques.
36. Comment on Flavr Savr tomato and Golden rice.
37. What are edible vaccines? Explain its utility.
38. Explain protoplast culture.

(6 × 4 = 24 Marks)

SECTION – D

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

39. Define micropropagation. Describe various approaches for micropropagation and its advantages.
40. Discuss the composition of a tissue culture media and steps in its preparation.

41. What is somatic embryogenesis? Discuss its principle and applications.
42. Write a detailed account on *Agrobacterium*-mediated genetic transformation of plants.
43. With the help of suitable example, explain the generation of herbicide-resistant transgenic plants.
44. Give an account on somaclonal variations and its applications.

(2 × 15 = 30 Marks)
