(Pages : 4) **M – 1810**

Reg. No. : .....

Name : .....

Fifth Semester B.Sc. Degree Examination, December 2021

Career Related First Degree Programme under CBCSS

Group 2(a) Botany and Biotechnology

Vocational Course

BB 1572 PLANT BIOTECHNOLOGY

(2019 Admission)

Time : 3 Hours Max. Marks : 80

SECTION – A

I. Answer **all** questions in one word or one or two sentence. Each question carries **1** mark.

1. What is a cybrid?

2. How can we sterilize tissue culture media?

3. Who is the father of tissue culture?

4. Define Biopharming.

5. What are edible vaccines?

6. What is the importance of Golden rice?

7. Define protoplast.

P.T.O.

8. Comment on T-DNA.

9. What is an explant?

10. Is the plant tissue culture media generally acidic or basic?

(10 × 1 = 10 Marks)

SECTION – B

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

11. Explain artificial seeds and their importance.

12. Differentiate between micronutrients and macronutrients in plants.

13. Explain dedifferentiation and redifferentiation.

14. Differentiate between totipotency and pluripotency.

15. What is somatic embryogenesis? What are its applications?

16. Compare Ti plasmids and Ri plasmids.

17. What are PGPRs? Name any two examples.

18. Write the composition of MS Media.

19. What is a callus? How is it formed?

20. What are *Vir* genes? Name four Vii proteins.

21. Explain organ culture and embryo culture in plants.

22. Discuss the function of agar in tissue culture. What is its source?

23. What are crown galls? How are they formed?

24. Write a note on cell suspension culture.

25. What is somatic hybridization? How are they selected?

26. Discuss the applications of haploid culture.

(8 × 2 = 16 Marks)

SECTION – C

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

27. Explain somaclonal variation, its possible causes, and applications.

28. What are plant secondary metabolites? Name any four secondary metabolites and their functions.

29. Explain hairy root culture in detail with diagrams.

30. What are the advantages and disadvantages of *in vitro* propagation in plants?

31. Explain virus-mediated gene transfer in plants.

32. What is BT cotton? How and why was it developed?

33. Comment on FLAVR SAVR tomato.

34. What is the need for developing salt tolerant plants?

35. What is a laminar flow hood? What are its salient features.

36. What is herbicide resistance? What are its applications?

37. Describe protoplast isolation methods in plants.

38. What is surface sterilization of plants? How is it done?

(6 × 4 = 24 Marks)

SECTION – D

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

39. Explain in detail the Agrobacterium-mediated gene transfer in plants, along with appropriate diagrams.

40. Explain 10 applications of plant genetic engineering.

41. What are plant growth regulators? Classify them and describe their functions.

42. Explain in details any four physical gene transfer methods, their advantages and disadvantages.

43. Write an essay on chemical gene transfer methods. Add a note on its advantages and disadvantages.

44. Give an account on various micropropagation methods in plants.

(2 × 15 = 30 Marks)

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