(Pages : 4) **M – 1802**

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

(2018 Admission)

Time : 3 Hours Max. Marks : 80

SECTION – A

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

1. What is a clone?
2. Define micropropagation.
3. The genetic variability present among plants derived from cultured cells is called _____.
4. Name any two agents used for surface sterilization in plant tissue culture.
5. What are androgenic haploids?
6. The Ti plasmid is present in _____.
7. What are opines?
8. Expand PEG.

9. Define microinjection.

10. How tissue culture media are sterilized?

(10 × 1 = 10 Marks)

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. What is a HEPA filter?

13. What is the need of preparing stock solutions of constituents for the preparation of tissue culture medium?

14. How batch cultures different from continuous cultures?

15. What do you understood from the term somatic hybridization?

16. What are cybrids?

17. Differentiate caulogenesis from rhizogenesis.

18. What are artificial seeds?

19. How direct embryogenesis is different from indirect embryogenesis?

20. How anther culture is different form pollen culture?

21. List out important applications of transgenic plants.

22. Draw the structure of a Ti plasmid.

23. What is the principle of electroporation?

24. Name two chemicals used for gene transfer in plants.

25. What are the positive impact of transgenic plants on agriculture?

26. Comment on biopharming.

(8 × 2 = 16 Marks)

SECTION – C

Answer **any Six** questions. **Each** question carrier **4** marks. Short essay type.

27. Briefly describe the organization of Ti plasmid with special reference to T-DNA and virus regions.

28. What are edible vaccines? Explain its utility.

29. Describe the biological method of gene transfer in plants.

30. Explain the utility of plants in the production of therapeutic molecules or proteins.

31. Define embryo culture and mention the different types. What are the applications of embryo culture?

32. Describe the different modes for the production of haploid plants with their applications.

33. Give an outline of the principles of cell suspension culture and its applications in biological studies.

34. How callus culture is different from suspension culture? Explain the different types of suspension cultures.

35. Explain the different methods of somatic fusion in brief.

36. What are applications of agrobacterium in plant genetic engineering?

37. Define organ culture. Explain the different types of organ cultures and mention its significance in general.

38. What is somaclonal variation? Explain the mechanism causing somaclonal variation in brief.

(6 × 4 = 24 Marks)

SECTION – D

Answer **any two** questions. **Each** question carries **15** marks. Essay type.

39. Briefly describe the approaches for the production of virus resistant and disease resistant transgenic plants.

40. Define micropropagation. Describe the various approaches for micropropagation and discuss their advantages and disadvantages.

41. Give an account on direct gene transfer techniques employed in plant transformation.

42. Give an account on the different components of a tissue culture media. Write a note on media preparation also.

43. Give an account on virus mediated gene transfer in plants.

44. What is somatic embryogenesis? Discuss the principle of somatic embryogenesis.

(2 × 15 = 30 Marks)

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