(Pages : 3)

S – 1943

Reg. No. : .....

Name : .....

Fifth Semester B.Sc. Degree Examination, December 2023

Career Related First Degree Programme Under CBCSS

Botany and Biotechnology

Vocational Course

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. Mention the role of cytokinin in plant tissue culture.
2. Define a cybrid.
3. What is cytodifferentiation?
4. Name any two culture media used in tissue culture.
5. Define organogenesis.
6. What is transfection?
7. Give an example for a transgenic plant.
8. Define liposomes.

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9. What is asepsis?

10. Name a chelating agent in plant tissue culture.

(10 × 1 = 10 Marks)

SECTION – B

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

11. Why is myo-inositol important in tissue culture?

12. List the applications of shoot tip culture.

13. Define elicitors. Give examples.

14. What is pollen culture?

15. Differentiate between batch and continuous culture.

16. What is filter sterilization?

17. Explain gene gun method.

18. What is hairy root culture?

19. How is tomato genetically modified?

20. What is biopharming?

21. Mention the advantages of ovule culture.

22. What are edible vaccines?

(8 × 2 = 16 Marks)

SECTION – C

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

23. What is the general composition of culture media in tissue culture?

24. Explain secondary metabolite production in plants by *in vitro* culture.

25. Comment on golden rice.

26. What are the advantages of genetic transformation in plants?

27. How somaclonal variants are isolated?

28. Explain the isolation of protoplast from plant tissue.

29. Discuss Bt plants as an example for engineering insect resistance in plants.

30. Differentiate between a somatic and zygotic embryo.

31. Explain the production of transgenic herbicide tolerant plants.

(6 × 4 = 24 Marks)

SECTION – D

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

32. Explain somatic embryogenesis leading to the production of synthetic seeds.

33. Define callus. Explain various steps involved in callus culture.

34. Explain how DNA transmission capabilities of *Agrobacterium tumefaciens* is exploited in plant transformation.

35. Outline the infrastructure and organization of a tissue culture laboratory.

(2 × 15 = 30 Marks)