



**2021/TDC(CBCS)/EVEN/SEM/
BTCDSE-601T/122**

**TDC (CBCS) Even Semester Exam.,
September—2021**

BIOTECHNOLOGY

(6th Semester)

Course No. : BTCDSE-601T

(Plant Biotechnology)

Full Marks : 50

Pass Marks : 20

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

SECTION—A

Answer any *fifteen* of the following questions :

1×15=15

1. Define totipotency.
2. What do you mean by embryo culture?
3. Define callus.
4. Name one commonly used nutrient medium for plant tissue culture.



(2)

5. Write a note on embryogenesis.
6. Write down the application of shoot-tip culture.
7. Define androgenesis.
8. How can chromosome doubling be performed?
9. What do you mean by pollen culture?
10. Define polyploidy.
11. Write down the uses of diploidization.
12. Why is chromosome elimination technique performed in plant biotechnology?
13. Define protoplast.
14. Define cybrid.
15. Define hybrid.
16. Write about somaclonal variation.
17. Write down the limitations of somatic hybridization technique.
18. What is the full form of PEG?
19. Define ammonification.

22J/118

(Continued)

(3)

20. Write about rhizobacteria.
21. Name one symbiotic nitrogen-fixing bacterium.
22. What do you mean by biofertilizer?
23. Rhizobium is a free-living nitrogen-fixing bacteria. Comment.
24. Which part of a plant contains nitrogen-fixing bacteria?
25. What are biocontrol agents?
26. What are the chemical methods of pest control?
27. Is trichoderma a biocontrol agent?
28. Name one fungus which can be used as a biocontrol agent.
29. Name the toxin produced by *Bacillus thuringiensis*.
30. What are free-living bacteria?

22J/118

(Turn Over)



(4)

SECTION—B

Answer any five of the following questions : $2 \times 5 = 10$

31. Write a note on organ culture.
32. What do you mean by cryogenic differentiation?
33. Write about anther culture.
34. What are gynogenic haploids?
35. Write about the methods of protoplast isolation.
36. Write down the application of somaclonal variation.
37. What is the significance of nitrogen fixation?
38. Define nodulation.
39. What are the uses of biocontrol agents?
40. Write a note on integrated pest management.

22J/118

(Continued)

(5)

SECTION—C

Answer any five of the following questions : $5 \times 5 = 25$

41. Discuss the process involved in the production of virus-free plant.
42. What do you mean by micropropagation? Add a note on the advantages of micropropagation. $3+2=5$
43. Write a note on *in vitro* haploid production. Mention two uses of haploid plants. $4+1=5$
44. What do you mean by microspore culture? Mention the factors affecting gynogenesis. $3+2=5$
45. Discuss the steps involved in protoplast fusion.
46. Discuss the application of somatic hybridization.
47. Discuss the process of nitrogen fixation by bacteria.
48. Discuss the role of plant growth promoting bacteria in crop improvement.

22J/118

(Turn Over)



49. Write down the application of biocontrol agents in controlling plant pathogens.
50. Discuss the role of microorganisms in plant growth and development.
