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Sixth Semester B.Sc. Degree Examination, April 2022

First Degree Programme under CBCSS

Botany

Open Course

BO 1661 : BIOTECHNOLOGY AND NANO BIOTECHNOLOGY

(2019 Admission)

Time : 3 Hours Max. Marks : 80

SECTION – A

I. Answer **all** questions. Each question carries **1** mark.

1. What are restriction endonucleases?
2. Define totipotency.
3. What are cybrids?
4. Expand RFLP.
5. What are *nif* genes?
6. What is meant by redifferentiation?
7. Comment on quantum dots.

P.T.O.

8. What are single cell proteins?

9. Who is the father of tissue culture?

10. What are plasmids?

(10 × 1 = 10 Marks)

SECTION – B

II. Answer **any eight** of the following. Each question carries **2** marks.

11. What are somatic hybrids?

12. Write a short note on gene library.

13. Mention the applications of biotechnology in the protection of environment.

14. Comment on the applications of biosensors.

15. What is callus?

16. How haploid plants are produced in tissue culture.

17. Explain the principle of electrophoresis.

18. Write a brief account of common intellectual property rights.

19. List the common tools and equipments used in tissue culture.

20. Comment on carbon nanotubes.

21. How synthetic seeds are produced?

22. Write a brief account on sub culturing.

23. Comment on gene therapy.

24. What is meant by somaclonal variation?

25. Give a brief account on bacterial culture media.

26. What are edible vaccines?

(8 × 2 = 16 Marks)

SECTION – C

III. Answer **any six** of the following. Each question carries **4** marks.

27. Explain the procedure of PCR.

28. Give an account of the sterilization methods of medium and equipments in tissue culture.

29. Write a brief account of common cloning vehicles.

30. Comment on ELISA.

31. Explain the methodology of isolation of DNA from plant cells.

32. What are genetically modified crops? Explain with examples.

33. Discuss the technologies used in the visualization of nanoscale structures.

34. Explain the composition of MS medium.

35. How virus free plants are produced in tissue culture?

36. Give an account of Agrobacterium mediated gene transfer.

37. Explain the procedure of Southern blotting.

38. Comment on biosafety and ethical issues associated with biotechnology.

(6 × 4 = 24 Marks)

SECTION – D

IV. Write an essay on **any two** of the following. Each question carries **15** marks.

39. Give an account of the application of microbes in industries.

40. What is DNA sequencing? Illustrate Sanger's method of sequencing.

41. Explain various steps involved in PCR.

42. Explain the procedure for protoplast culture.

43. Give an account of different methods of microbial culturing.

44. Discuss the various steps involved in tissue culture. How sterilization is important in tissue culture.

(2 × 15 = 30 Marks)