(Pages : 4) **M – 1809**

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 1571 RECOMBINANT DNA TECHNOLOGY

(2019 Admission)

Time : 3 Hours Max. Marks : 80

SECTION – A

Very short answer type. Maximum two sentences. Answer **all**.

1. Give note on Restriction endonucleases.
2. Explain YAC.
3. Define Competent cell.
4. What is AFLP?
5. What is microarray?
6. Give an example for Shuttle vectors.
7. Identify the contributions of Francis Collins.

8. What is a DNA probe?

9. What is cDNA library?

10. Define Linker.

(10 × 1 = 10 Marks)

SECTION – B

Short answer questions. Not exceed in one paragraph. Answer any **eight**.

11. What is Taq polymerase?

12. Identify the importance of Agrobacterium tumefaciens in rDNA technology.

13. Explain Alkaline phosphatase.

14. Give note on RFLP.

15. Write a short note on RT-PCR.

16. Give note on the application of southern blotting.

17. What is pBR322?

18. Explain DNA barcoding.

19. What are the different steps of PCR?

20. Give note on the contributions of Werner Arber, Daniel Nathans and Hamilton O. Smith.

21. Explain Nested PCR.

22. Distinguish between type I & type III restriction endonucleases.

23. Define Immunoblotting.

24. What is an expression vector?

25. Discuss the contributions of Craig Venter.

26. What are shuttle vectors?

(8 × 2 = 16 Marks)

SECTION – C

Short essay. Not to exceed **120** words. Answer any **six**

27. Differentiate between phagemid and Cosmid.

28. Give note on Artificial chromosome vectors.

29. Identify and explain role of enzymes used in rDNA technology.

30. Explain the steps involved in recombinant DNA technology.

31. Explain different methods of screening and selection of recombinant cells.

32. Write a short essay on DNA sequencing technologies.

33. What is transgenic organisms. Give suitable examples.

34. Give a short note on Gene transfer methods.

35. Explain Nucleic acid blotting and its applications.

36. Write a short note on the applications of transgenic organisms in agriculture.

37. What is blue-white screening technique?

38. What is molecular marker? Give note on different methods.

(6 × 4 = 24 Marks)

SECTION – D

Long essay. Answer any **two** questions.

39. Describe in detail the methodologies and goals of the human genome project.

40. What is biosafety? Write an essay on biosafety and ethics.

41. Describe in detail the methods adopted for gene expression analysis.

42. What is PCR? Give a detailed note on different types of PCR.

43. Give a detailed note on the preparation of DNA libraries.

44. What is a vector? Give note on different types of it.

($2 \times 15 = 30$ Marks)

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