(Pages : 3) **M – 1793**

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 1571 : RECOMBINANT DNA TECHNOLOGY

(2016 and 2017 Admission)

Time : 3 Hours Max. Marks : 80

SECTION – A

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

1. Who constructed the first artificial recombinant DNA molecule?
2. What are ligases?
3. Define microinjection.
4. What are plasmids?
5. Mention any one application of Taq DNA polymerase.
6. What are competent cells?
7. What is RFLP?
8. What are cosmids?
9. What is the significance of selectable markers?
10. Name one rDNA product of human therapeutic value.

(10 × 1 = 10 Marks)

P.T.O.

SECTION – B

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

11. What is an ideal host cell? Justify *E.coli* cell as an ideal host cell.

12. Write the advantage of nylon membrane over nitrocellulose membrane in Southern blotting.

13. What is RT-PCR?

14. Give any Two applications of gene therapy.

15. Describe the role of Kary Mullis in rDNA technology.

16. What are restriction enzymes? Give any two examples.

17. What is the difference between probe and primer?

18. Explain briefly the process of immune-blotting.

19. What is insertional inactivation?

20. What are the advantages of using yeast expression vectors?

21. Give any two applications of Western blotting.

22. Differentiate shuttle and expression vectors.

(8 × 2 = 16 Marks)

SECTION – C

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

23. Briefly outline the principle and methodology of DNA sequencing by chain termination method.

24. What is DNA fingerprinting? Describe the process and application of DNA fingerprinting?

25. Write short note on the ethical issues associated with recombinant organisms.

26. Outline the development of M 13 vector series.

27. Differentiate biolistics and liposome mediated gene transformation.

28. Describe the production and importance of Bt cotton.

29. Explain any two methods used for the screening of recombinants.

30. What are microarrays? Give its applications.

31. Draw a neat labeled diagram of pBR322 plasmid. List out its important features.

(6 × 4 = 24 Marks)

SECTION – D

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

32. Explain various tools used in rDNA technology.

33. What is cDNA library? Explain the mechanism of preparation of cDNA library.

34. Describe how recombinant DNA technology is useful in medicine and agriculture citing suitable examples.

35. Describe different types of polymerase chain reaction methods and its applications.

(2 × 15 = 30 Marks)

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