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Reg. No. : .....

Name : .....

**Fifth Semester B.Sc. Degree Examination, December 2022**

**Career Related First Degree Programme under CBCSS**

**Group 2 (a) : Botany and Biotechnology**

**Vocational Core Course**

**BB 1571 : RECOMBINANT DNA TECHNOLOGY**

**(2018 Admission)**

Time : 3 Hours

Max. Marks : 80

**SECTION – A**

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

1. What is plasmid?
2. Define transformation.
3. Write the function of Taq polymerase.
4. What is reverse transcriptase?
5. What is vector mediated gene transfer?
6. Define plasmid incompatibility.
7. Differentiate between cohesive and blunt end DNA.
8. Write the use of marker gene with an example.

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9. Define a recombinant DNA.
10. Mention the function of ligase.

**(10 × 1 = 10 Marks)**

### SECTION – B

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

11. Explain the naming of a restriction enzyme citing suitable example.
12. What is an expression vector?
13. Mention the application of M13 vector.
14. State the difference between exonuclease and endonuclease.
15. What is electroporation?
16. Define competent cell.
17. What is genomic library?
18. What is liposome mediated gene transfer?
19. Write the use of reporter gene. Give an example.
20. Mention the properties of Type I restriction enzyme.
21. State the principle of AFLP.
22. What is transduction? Mention its significance.
23. What is a transgenic organism?
24. List the uses of BAC.
25. What is the principle of Blue white screening?
26. Write the use of piperidine in Maxam and Gilbert sequencing.

**(8 × 2 = 16 Marks)**

## SECTION – C

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

27. Explain DNA barcoding.
28. Write notes on Type II restriction enzymes.
29. What is RFLP?
30. How immunoblotting is done?
31. What is DNA microarray?
32. Discuss the uses of transgenic organisms in medicine.
33. Explain gene therapy and its significance.
34. Write the properties and applications of pBR 322.
35. What is northern hybridization?
36. Which are the desirable properties of a vector?
37. Write the steps and conditions of standard PCR.
38. What is RAPD?

**(6 × 4 = 24 Marks)**

## SECTION – D

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

39. Discuss the implications and highlights of Human Genome project.
40. What is cDNA library? Explain the steps in cDNA library construction.

41. Explain various methods of gene transfer techniques.
42. Give an account on enzymatic gene sequencing methods.
43. Discuss the applications of transgenic organisms in agriculture and medicine.
44. Describe the steps of Southern hybridisation. Add a note on its applications.

**(2 × 15 = 30 Marks)**

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