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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**

**BB 1571 : RECOMBINANT DNA TECHNOLOGY**

**(2019 Admission Onwards)**

Time : 3 Hours Max. Marks : 80

SECTION – A

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

1. What are the key basic reagents used in PCR?
2. Discuss the contributions of Kary Mullis
3. What is BAC?
4. What is Golden Rice?
5. Give note on primer.
6. Define Adaptor.
7. What is genomic library?
8. Explain the functions of polynucleiotide Kinase.

9. Explain the importance of COI gene.
10. Identify the role of DNA ligase.

**(10 × 1 = 10 Marks)**

SECTION – B

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

11. What is a primer for PCR?
12. Write short note on Ti plasmids.
13. Give note on RAPD.
14. What are Isoschizomers?
15. Explain RT-PCR.
16. What are the uses of PCR?
17. Give note on Alkaline phosphatase.
18. Distinguish between type I and type II restriction endonucleases.
19. Give note on M13 based vectors.
20. Write a short note on Maxam and gilbert method of DNA sequencing.
21. Give note on Single-cell PCR.
22. Describe any four recombinant products for medical applications.
23. Write a note on terminal transferase.
24. Give a note on pUC vector.
25. How are competent cells prepared?
26. Explain AFLP.

**(8 × 2 = 16 Marks)**

SECTION – C

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

27. What is the difference between genomic library and cDNA library?
28. Give a short essay on different gene transfer methods.

29. Discuss any two methods used in selection of recombinants.
30. Write a short essay on different methods of gene expression analysis.
31. Compare and differentiate Sanger's method and Maxam- Gilbert method of DNA sequencing.
32. Write a short essay on human genome project.
33. What is Microarray technique? Explain the principles and applications.
34. What is blue-white screening technique?
35. Describe the procedure and a application of Western blotting.
36. Differentiate between phagemids and cosmids.
37. Give note on biosafety measures that are adopted in genetic engineering.
38. Explain Nucleic acid blotting and its applications.

**(6 × 4 = 24 Marks)**

SECTION – D

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

39. Define molecular markers. Describe different types of molecular markers.
40. Write the principles and applications of recombinant DNA technology.
41. What are vectors? Explain different types of it.
42. Explain the various enzymes used in recombinant DNA technology.
43. What are transgenic organisms? Write its applications in agriculture.
44. Write an essay on historical perspectives of Recombinant DNA technology.

**(2 × 15 = 30 Marks)**

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