K25P 2888

Reg. No. : .....

Name : .....

III Semester M.Sc. Degree (C.B.C.S.S. – OBE – Reg./Supple./Imp.) Examination, October 2025
(2023 Admission Onwards)
BIOTECHNOLOGY
MSBTC03C13 : Recombinant DNA Technology

Time : 3 Hours Max. Marks : 40

SECTION – A

Answer **any five** questions. **Each** question carries **2** marks.

1. What is colony hybridization ? Illustrate the technique.
2. What are miRNAs ? What is its significance ?
3. What is the basic difference between dNTPs and ddNTPs ? What is the specific application of ddNTPs ?
4. What is gene therapy ? Name any two vectors used for gene therapy.
5. Define heterologous proteins. What is its significance ?
6. What is the principle of Rapid Amplification of cDNA Ends ? What are the major steps of this technique ? **(5×2=10)**

SECTION – B

Answer **any three** questions. **Each** question carries **4** marks.

7. What are restriction enzymes ? How are they classified ? Which class of restriction enzyme is used for recombinant DNA technology ?
8. Define monoclonal antibodies. Explain the steps involved in the production of monoclonal antibodies by recombinant DNA technology.
9. Discuss the design of gene-specific primers.
10. Give an account on the applications of recombinant DNA in forensic science.
11. What are the features of phage and cosmid vectors. **(3×4=12)**

P.T.O.

SECTION – C

Answer **any three** questions. **Each** question carries **6** marks.

12. What is DNA library ? Explain the steps involved in the construction of a genomic DNA library. How does it differ from a cDNA library ?

13. Explain principles and applications of Real Time RT PCR.

14. Explain the principle and application of pyrosequencing. Add suitable diagrams.

15. Give an account on the applications of recombinant DNA technology in the field of medicine.

16. What is blotting ? What are the different types of blotting techniques used in molecular biology ? **(3×6=18)**

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