

S.No. 5688

16 SMBEMB 2

(For candidates admitted from 2016–2017 onwards)

B.Sc. DEGREE EXAMINATION, APRIL 2022.

**Part III — Microbiology – Major Based Elective
RECOMBINANT DNA TECHNOLOGY**

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20)

Answer ALL questions.

1. Isolation of RNA
2. S1 Nuclease
3. RNA Polymerase
4. Isoschizomers
5. Hybrid vector
6. Shuttle vector
7. PEG transformation
8. Marker inactivation method of selection of recombinant
9. RFLP
10. Micro array.

PART B — ($5 \times 5 = 25$)

Answer ALL questions, choosing either (a) or (b).

11. (a) How are cDNA library constructed Give their advantages?

Or

- (b) Outline the steps involved in isolation of chromosomal and plasmid DNA?

12. (a) Give an account on mode of action and applications of DNA polymerases?

Or

- (b) Differentiate the mode of action of Type I and Type III Restriction endonucleases

13. (a) Write a detail account on Cosmid vectors?

Or

- (b) Explain the expression vector systems of *E.Coli*.

14. (a) Describe Biolistic technique for gene transfer.

Or

- (b) How are immunological screening for recombinants done?

15. (a) Compare the features of Southern, Northern and Western blotting?

Or

- (b) Write a detailed account on DNA fingerprinting and their applications?

PART C — ($3 \times 10 = 30$)

Answer any THREE questions.

16. How are Genomic Library constructed? Give their applications?

17. Explain the characteristic features and applications of type H restriction enzymes with examples?

18. Comment on the features of BAC and YAC vectors with suitable examples?

19. Explain the technique of in-vitro packaging of phages in laboratory for cloning?

20. Describe the steps in DNA amplification and give their applications?
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