

Roll No. :

Total No. of Questions : 16]

[Total No. of Printed Pages : 3

SMIC-121

M.Sc. (Ist Semester) Examination, 2021

MICROBIOLOGY

Paper - MB-104

(Microbial Genetics and Genetic Engineering)

Time : 1½ Hours]

[Maximum Marks : 40

Section-A

(Marks : 1 × 10 = 10)

Note :- Answer all *ten* questions (Answer limit **50** words). Each question carries 1 mark.

Section-B

(Marks : 3 × 5 = 15)

Note :- Answer all *five* questions by selecting at least *one* question from each Unit (Answer limit **200** words). Each question carries 3 marks.

Section-C

(Marks : 5 × 3 = 15)

Note :- Answer any *three* questions by selecting at least *one* question from each Unit (Answer limit **500** words). Each question carries 5 marks.

Section-A

1 each

1. (i) What do you mean by Induced Mutations ?

(ii) Define Hfr Cells.

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(1)

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- (iii) What is competence in Microbial Genetics ?
- (iv) Enlist essential characteristics of a Plasmid.
- (v) What is the role of Beta-mercaptoethanol in SDS-PAGE ?
- (vi) Define Microarray.
- (vii) What do you mean by Hybridization Probe ?
- (viii) Define Phagemid.
- (ix) What do you mean by Electroporation ?
- (x) Define Intellectual Property Rights.

Section–B

3 each

Unit–I

- 2. Describe the process of Conjugation.
- 3. Write a note on Point Mutations.
- 4. Write an explanatory note on Plasmids.

Unit–II

- 5. Explain principle and procedure of Southern Blotting.
- 6. What are Restriction Enzymes ? Describe.
- 7. Describe chain termination method of DNA sequencing.

Unit–III

- 8. Describe Site Directed Mutagenesis.
- 9. Write a short note on Electroporation and Microinjection Techniques.
- 10. Write short notes on the following :
 - (a) Patenting Laws in India
 - (b) PUC 18

Section-C

5 each

Unit-I

11. Describe the process of Transduction in Bacteria. Add a note on specialized transduction.
12. Write an explanatory note on various types of Mutagens.

Unit-II

13. Describe the process of Denatured Protein Electrophoresis.
14. Write notes on the following :
 - (a) Microarray
 - (b) Western Blotting

Unit-III

15. Explain the following :
 - (a) Construction of cDNA Library
 - (b) Yeast Artificial Chromosome
16. Describe different techniques of Gene Transfer