

2019

B.Sc. (Hons.)

4th Semester Examination

MICROBIOLOGY

Paper—C8T

Full Marks : 40

Time : 2 Hours

*The figures in the margin indicate full marks.  
Candidates are required to give their answers  
in their own words as far as practicable.*

**Group—A**

1. Answer any *five* questions from the following : 5×2
- (a) What is reverse mutation ? 2
- (b) Define LINE & SINE 1+1
- (c) What is IS element ? Write down its structure. 1+1
- (d) Define intra & intergenic suppression ? 1+1
- (e) What are Hfr and F<sup>1</sup> strains ? 1+1
- (f) Define F-plasmid and T<sub>2</sub> plasmid. [+]

- (g) What do you mean by competence ? 2
- (h) What is retrotransposon ? 2

**Group-B**

2. Answer any *four* questions from the following :  
4×5
- (a) Explain transition and transversion with example. Write down the name and mode of action of one physical mutagenic agent. 3+2
- (b) Write down the process of generalized transduction with diagram. 5
- (c) Define tautomerism ? Write down its role in mutation ? 2+3
- (d) Differentiate between plasmid and transposon. What replicative and non-replicative transposition ? Cite example. 2+2+2
- (e) Write down the difference between prototrophs and auxotrophs with examples.  $2\frac{1}{2}+2\frac{1}{2}$
- (f) Write short note on base analogue ? Write down the significance of Ames test. 3+2

( 3 )

**Group-C**

3. Answer any *one* questions from the following : 1×10
- (a) Write down the mechanism of transformation using natural competence. Briefly describe the regulation of copy number of plasmid in *E. coli* cell. 5+5
- (b) Diagrammatically state the process of  $F^+$  and  $F^-$  conjugation process. What is homologous recombination ? State the uses of transposons. What is the role of helper phage in specialized transduction ? 5+2+2+1
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