

U.G. 4th Semester Examination - 2020**MICROBIOLOGY****[HONOURS]****Course Code : MB(H)CC-L-8****(Microbial Genetics)**

Full Marks : 40

Time : $2\frac{1}{2}$ Hours*The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.*1. Answer any **five** of the following question:

2×5=10

- i) What is F plasmid?
- ii) What is tautomeric shift?
- iii) What is plasmid-incompatibility?
- iv) What is plasmid curing?
- v) What is Ty-element?
- vi) What is composite-Transposon?
- vii) What is transduction?
- viii) What do you mean by time mapping in bacteria?

2. Answer any **two** of the following questions:

5×2=10

- i) Briefly describe the structure of natural Ti plasmid.
- ii) What is genome? What do you mean by genome organization? Briefly write the organization of *E. coli* genome. 1+1+3
- iii) What is Hfr? Briefly describe the process of Hfr mediated DNA transfer. 1+4
- iv) Briefly describe the prokaryotic transposons.

3. Answer any **two** of the following: 10×2=20

- i) What is spontaneous mutation? What do you mean by missense mutation? Describe different mechanisms of induced mutation. How transposon acts as a mutagen? 1+1+6+2
- ii) What is transposable element? What do you mean by cut and paste transposon? Write the features of IS element. What are replicative transposons? Write briefly about the Ac-Ds system. 1+2+2+2+3
- iii) What do you mean by host range of plasmid? Describe specialized transduction. Write the

feature of T4 genome. What is mutator gene?

2+4+3+1

iv) Write short note on the following: $2\frac{1}{2} \times 4$

- a) Lytic-lysogenic switching
- b) P-element of Drosophila
- c) Plasmid partitioning system
- d) Ames test
