

**B.Sc. Semester-IV Examination, 2022-23****MICROBIOLOGY [Honours]**

Course ID : 42211 Course Code : SH/MCB/401/C-8

Course Title : Microbial Genetics

Time : 1 Hour 15 Minutes Full Marks : 25

*The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.***UNIT-I**1. Answer any **five** of the following questions:

1×5=5

- What is spontaneous mutation?
- What is plasmid curing?
- Define mutational hotspot.
- Who discovered mechanism of transformation in bacteria?
- Write the full form of HFT lysates.
- How a lysogenic cycle differ from a lytic cycle?
- What is plasmid incompatibility?
- What is composite transposon?

**UNIT-II**2. Answer any **two** of the following questions:

5×2=10

- Why are *Salmonella* strains used in Ames test? What mutation is used as an indicator of mutation rate in the Ames test? Why the Ames test is used as a test for carcinogenicity?  
1+2+2=5
- What is transduction? How generalized transduction differ from specialized transduction?  
1+4=5
- Write a short note on col plasmid.
- What is reversion? Write short notes on intra and inter-genetic suppression.  
1+4=5

**UNIT-III**3. Answer any **one** of the following question:

10×1=10

- Which type of *E.coli* strain was chosen to prove the experiment of conjugation? What is the difference between  $F^+ \times F^-$  and  $Hfr \times F^-$ ? Describe the mechanism of conjugation in bacterial cells with diagram.  
1+3+6=10

- b) What is a mutagen? Discuss the mechanism of formation of thymine dimer in response to UV ray? What are IS elements? Differentiate between replicative and non-replicative transposition.  $1+3+2+4=10$
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