PG Odd Semester Examination, March, 2023

MICROBIOLOGY

(3rd Semester)

Course No.: MIBCC-303

(Microbial Genetics and Genomics)

Full Marks: 70

Pass Marks : 28

Time: 3 hours

The figures in the margin indicate full marks for the questions. Answer any five question taking one from each unit.

UNIT-I

1. Explain this process of genetic exchange by transduction. How does specialized transduction is different from generalized transduction? 7+7=14

2. Describe the molecular mechanisms of the process of conjugation in bacteria. 14

UNIT-II

3. What is homologous recombination? Describe the holiday model of recombination and different genes and protein involved for homologous recombination in bacteria. 2+12=14

4. What are the structural features of IS elements and transposons? Explain the replicative transposition in detail. 7+7=14

UNIT-III

5. Describe the regulation of control between lytic and lysogenic cycle in λ-phage. 14

Turn Over

6. What are plasmids? Explain about some of the plasmids that provide unique characteristics to the bacteria. 14

UNIT-IV

7. Describe the negative regulation of lac-operon. 14

8. Explain the genetic regulation of tryptophan operon by attenuation. 14

UNIT-V

9. What is transcriptomics? Explain the technique of Microarray for transcriptome analysis. 14

10. Explain the strategies and in Meta-genomics to study unculturable microbes. 14

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