

Code No. 3592

**FACULTY OF SCIENCE**  
**M. Sc. III – Semester Examination, December 2014**

**Subject: Microbiology**  
**Paper – I: Molecular Biology and Microbial Genetics**

Time: 3 Hours

Max.Marks: 80

**Note: Answer all questions from Part - A and Part - B.**  
**Each question carries 4 marks in Part - A and 12 marks in Part - B.**

**PART – A (8 x 4 = 32 Marks)**  
**[Short Answer Type]**

- 1 "Semi-conservative replication" of DNA.
- 2 Transposable elements
- 3 Codon redundancy
- 4 Spliceosomes
- 5 Genetic complementation
- 6 Mutagens
- 7 Hfr transfer
- 8 Differentiate transformation and conjugation

**PART – B (4 x 12 = 48 Marks)**  
**[Essay Answer Type]**

- 9 a) Explain the process of DNA replication in eukaryotes.  
**OR**  
b) Discuss the structural and functional organization of bacterial genome.
- 10 a) Write in detail about the process of translation.  
**OR**  
b) Briefly explain the following:  
A) Structure of tRNA  
B) mRNA splicing  
C) Genetic code
- 11 a) Write in detail on the molecular basis of mutations.  
**OR**  
b) Discuss in detail about the different DNA damage repair mechanisms.
- 12 a) Write in detail on the significance of horizontal gene transfer in prokaryotes.  
**OR**  
b) Explain the types of bacterial transduction.

\*\*\*\*