

FACULTY OF SCIENCE

M.Sc. III-Semester Examination, November / December 2013

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 (8X4 = 32 Marks)
[Short Answer Type]

1. Structure of dsDNA ✓
2. Selfish DNA ✓
3. Eukaryotic RNA polymerase active structure ✓
4. m-RNA splicing ✓
5. Molecular basis of mutations
6. Dark repair of DNA
7. Sex factors in bacteria ✓
8. Abortive transduction ✓

PART – B (4x12 = 48 Marks)
[Essay Answer Type]

9.(a) Explain different modes of DNA replication in *E.coli* and their significance.

OR

(b) How is genome organized in prokaryotes and eukaryotes? Explain.

10.(a) Write on the salient features of genetic code and its significance.

OR

(b) Explain the post-transcriptional modification and its importance.

11.(a) Explain the mutagenicity testing using microbial system.

OR

(b) Explain the gene structure taking Benzer's model as example.

12.(a) Write briefly on conjugation in bacteria and explain the gene mapping.

OR

(b) Differentiate transduction, co-transduction and specialized transductions and their importance in genetic recombination of bacteria.
