

**PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)**

**MSc DEGREE EXAMINATION MAY 2018  
(Second Semester)**

**Branch – APPLIED MICROBIOLOGY**

**MICROBIAL GENETICS**

Time: Three Hours

Maximum: 75 Marks

**SECTION -A (30 Marks)**

Answer **ALL** questions

**ALL** questions carry **EQUAL** Marks (5 x 6 = 30)

- 1 a Write in brief about the concept of pleiotropy and genomic imprinting.  
OR  
b Briefly explain the process of crossing over with its various types.
- 2 a Give an account on the types of mutations with suitable example.  
OR  
b Write a short notes on the isolation and selection of mutants.
- 3 a What is meant by Genetic recombination? Explain the types and the proteins involved in it.  
OR  
b Write a short notes on the Gene transfer method by transduction.
- 4 a Give an account on the molecular mechanism of transposition.  
OR  
b Explain in brief about the yeast Ty – 1 transposon.
- 5 a Briefly illustrate the process of replication and packaging of filamentous phage M13.  
OR  
b Give a detailed account on the process of yeast gene mapping.

**SECTION -B (45 Marks)**

Answer any **THREE** questions

**ALL** questions carry **EQUAL** Marks (3 x 15 = 45)

- 6 Briefly explain the Mendelian principles with its experimental evidences.
- 7 Write an essay about the various types of DNA damage and its repair mechanism with selected examples.
- 8 Explain in detail about the mechanism of Gene transfer by conjugation and Transformation.
- 9 Give a brief note on the classes of various bacterial transposons and add a note on the regulation of transposition.
- 10 Describe the process of lytic cycle of  $\lambda$  phage with its regulation of gene expression.