PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
MSc DEGREE EXAMINATION MAY 2019
(First Semester)

Branch - BIOTECHNOLOGY

MICROBIAL GENETICS

Time: Three Hours Maximum: 75 Marks

Answer ALL questions
ALL questions carry EQUAL marks (2 + 5+ 8)

1 a What are Okazaki fragments?
b Draw and explain the structure and types of DNA polymerases.
c Discuss the Chemistry of double helical DNA.
OR
d What is Processisity and fidelity?
e How do antibiotics affect replication?
f Explain the process of DNA Replication with special reference to Prokaryotes.

2 a What are partial heterozygotes?
b How is lac operon regulated positively?
c Explain Attenuation control of transcription with trp operon as an example.
OR
d Draw and label the parts of a t RNA.
e Discus the events in mRNA editing,
f Elaborate on the transcription process in prokaryotes.

3 a Define Wobble Hypothesis.
b What are Chaperons? How do they assist protein folding?
c Discuss in detail the translation mechanism.
OR
d What are Signal peptides? What is the importance?
e Discuss the mechanisms of protein synthesis block by antibiotics,
f Sketch the explain the import of cytosolic proteins in to mitochondria.

4 a What are Temperature Sensitive Mutants?
b Sketch and explain the model of transposon mutagenesis.
c How does phage lambda enter in to lysogenic cycle?
OR
d What is meant by cis and trans complementation?
e How will you map genes using interrupted mating?
f Write an essay on mutation, its genetic and molecular causes.

5 a What is the role of Photolyase?
b Elaborate on Heat Shock regulation.
c Discuss SOS Repair mechanism and DNA Excision Repair Mechanism.
OR
d What is meant by illegitimate recombination?
e Explain the molecular basis for regulation in virulence genes,
f Sketch and explain Holliday model of recombination.