

**PSG COLLEGE OF ARTS & SCIENCE**  
(AUTONOMOUS)  
**BSc DEGREE EXAMINATION DECEMBER 2019**  
(Third Semester)

Branch - **BIOTECHNOLOGY**

**MOLECULAR BIOLOGY**

Time : Three Hours

Maximum : 75 Marks

**SECTION-A (20 Marks)**

Answer **ALL** questions

**ALL** questions carry **EQUAL** marks (10 x 2 = 20)

- 1 Fertility factor.
- 2 Z-DNA.
- 3 Chromatin.
- 4 Topoisomerase.
- 5 Promoter.
- 6 Exon.
- 7 Shine-Dalgarno sequence.
- 8 Cis-trans test.
- 9 Photoreactivation.
- 10 Transposition.

**SECTION - B (25 Marks!)**

Answer **ALL** Questions

**ALL** Questions Carry **EQUAL** Marks (5 x 5 = 25)

- 11 a Bring out the experiment performed by Lederberg and Tatum.  
OR  
b Draw and describe the structure of DNA double helix.
- 12 a With neat sketches explain the rolling circle mechanism of DNA replication.  
OR  
b Mention the role of DNA polymerase in DNA replication.
- 13 a Describe the steps involved in prokaryotic transcription.  
OR  
b How does DNA methylation affect gene expression? Discuss.
- 14 a Draw and describe the clover leaf model of tRN A.  
OR  
b How protein synthesis gets terminated? Discuss.
- 15 a Give a brief account on the mechanism of SOS repair.  
OR  
b Draw and describe the Whitehouse model of recombination.

**SECTION - C (30 Marks)**

Answer any **THREE** Questions

**ALL** Questions Carry **EQUAL** Marks (3 x 10 = 30)

- 16 Briefly explain about bacterial interrupted mating experiment performed by Jacob and Wollman.
- 17 Give a brief account on the structural organization of eukaryotic chromosome.
- 18 Briefly explain the process of regulation of gene expression in *lac* operon.
- 19 What is gene mutation? Give a brief account on the molecular basis of mutation.  
~ '----- about the replicative and conservative transportation in