

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

**BSc DEGREE EXAMINATION DECEMBER 2019
(Third Semester)**

Branch- **MICROBIOLOGY**

MOLECULAR BIOLOGY

Time : Three Hours

Maximum : 75 Marks

SECTION-A (20 Marks)

Answer **ALL** questions

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

Write short notes on:

- 1 Topoisomerases.
- 2 B-DNA.
- 3 EF-P.
- 4 Mode of action of Rifamycin, Chloramphenicol, Tetracyclin.
- 5 Rho factor.
- 6 tRNA.
- 7 Attenuator.
- 8 TATA box.
- 9 Enhancers.
- 10 Hormonal control of gene expression.

SECTION - B (25 Marks)

Answer **ALL** Questions

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

- 11 a Compare and contrast the features of A-DNA, B-DNA and Z-DNA.
OR
b What are the proofs given by Meselson and Stahl experiment. Explain.
- 12 a Illustrate the structure and function of RNA polymerase.
OR
b Elaborate a note on post transcriptional modifications of r-RNA and t-RNA.
- 13 a Explain the features of Genetic code. Add a note on Wobble hypothesis.
OR
b Give an account on Post translational modifications in proteins.
- 14 a Explain Trp operon with suitable illustrations.
OR
b How are positive and negative control of gene expression mediated? Explain.
- 15 a Explain m-RNA splicing and give its significance.
OR
b How do promoters and enhancers activate gene expression. Explain.

SECTION - C (30 Marks)

Answer any **THREE** Questions

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

- 16 Describe the semi-conservative mode of DNA replication?
- 17 Explain the process of Transcription.
- 18 Discuss the mechanism of Translation.
- 19 Detail an account on lac operon.
- 20 Explain the genome organization in eukaryotes with histones, exons and