

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2023
(Third Semester)

Branch- MICROBIOLOGY

MOLECULAR BIOLOGY

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (5 x 1 = 5)

- 1 Which enzyme possesses the both 5'-3' and 3'-5' exonuclease activity?
(i) DNA polymerase III (ii) Kornberg enzyme
(iii) Topoisomerase (iv) Taq DNA polymerase
- 2 Transcription is the transfer of genetic information from
(i) tRNA to mRNA (ii) DNA to RNA
(iii) mRNA to tRNA (iv) DNA to mRNA
- 3 What is the main function of tRNA in relation to protein synthesis?
(i) Proof reading (ii) Inhibit protein synthesis
(iii) Elongation (iv) Identifies amino acid and transport them to ribosomes
- 4 Which of these acts as an inducer of the lac operon?
(i) Lactose (ii) Allolactose
(iii) Galactose (iv) Glucose
- 5 Association of DNA and histone is mediated by _____
(i) Covalent bonding (ii) Hydrogen bonding
(iii) Hydrophobic bonding (iv) Vander Waals interactions

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 3 = 15)

- 6 a) Draw a neat sketch structure of RNA.
(or)
b) Classify about the forms of DNA.

Cont....

- 7 a) Summarize the Post transcriptional modification of Ribosomal RNA.
(or)
b) How to differentiate between Rho dependent and Rho independent termination?
- 8 a) Explain about the Post-translational modification (PTM) of proteins.
(or)
b) Give outline about the features of genetic code.
- 9 a) State about the Mechanism of trp operon.
(or)
b) Describe the lac operon concept.
- 10 a) Bring about the Mechanism of enhancer.
(or)
b) Briefly explain about the Eukaryotic RNA polymerase enzyme.

SECTION -C (30 Marks)

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

- 11 a) High light the application of autoradiography.
(or)
b) Elucidate the DNA as a double helix.
- 12 a) Discuss about the process of transcription.
(or)
b) Summarize the post transcriptional modification of tRNA.
- 13 a) Give an account on inhibitors of translation.
(or)
b) Write about the activation amino acid.
- 14 a) Describe about the Attenuator control.
(or)
b) Enumerate the Role of repressor and inducer molecules.
- 15 a) Write a detail note on Lariat model mRNA splicing.
(or)
b) Analyze the Interaction with histones.

Z-Z-Z

END