

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION MAY 2024
(Third Semester)

Branch – **BIOCHEMISTRY**

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 Eukaryotes differ from prokaryote in mechanism of DNA replication due to ____
(i) Use of DNA primer rather than RNA primer
(ii) Different enzyme for synthesis of lagging and leading strand
(iii) Discontinuous rather than semi-discontinuous replication
(iv) Unidirectional rather than semi-discontinuous replication
- 2 What is the work of the sigma factor in transcription?
(i) Helicase action (ii) Promotor identification
(iii) Transcription elongation (iv) Transcription termination
- 3 Which one of the following is the stop codon
(i) AUG (ii) UAA
(iii) GCA (iv) AGG
- 4 If the mutation has a negligible effect on the function of a gene, it is known as a
(i) Silent mutation (ii) Frame shift mutation
(iii) Substitution mutation (iv) Insertion mutation
- 5 The central block of the composite transposable element consists a gene for ____
(i) Transposase (ii) Antibiotic resistance
(iii) Integrase (iv) Lactamase

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a Discuss the Hershey-Chase experiment.
OR
b Elaborate the rolling circle mode of replication.
- 7 a Discuss the termination process of transcription in prokaryotes.
OR
b Discuss the 5'cap formation in m-RNA.
- 8 a Elaborate the structure of Prokaryotic and eukaryotic ribosomes.
OR
b Discuss the inhibitors of translation.
- 9 a Discuss about the deamination and depurination process.
OR
b Elaborate the Base excision repair mechanism.
- 10 a Explain the point mutation.
OR
b Summarize the non-composite transposons.

Cont...

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

- 11 a Discuss about the Meselson-Stahl experiment.
OR
b Elaborate the DNA replication process in prokaryotes.
- 12 a Outline the eukaryotic transcription process.
OR
b Summarize the prokaryotic transcription mechanism.
- 13 a Summarize the translation process in prokaryotes.
OR
b Discuss the post translational modifications of proteins.
- 14 a Elaborate the different types of DNA damage.
OR
b Summarize the Lac operon model.
- 15 a Elaborate the various types of gene mutations.
OR
b Summarize the mechanism of transposons.

Z-Z-Z

END