18BCV09/18BCU09

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2023
(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 Which of the following enzymes remove supercoiling in replicating DNA ahead of the replication fork?
i) DNA polymerases ii) Helicases
iii) Primases iv) Topoisomerases

2 Who discovered RNA polymerase?
i) Samuel B. Weiss ii) Nirenberg
iii) Watson and Crick iv) Darwi

3 Which of the following rRNA is intimately involved with the peptidyl transferase activity?
i) 5S rRNA ii) 16S rRNA iii) 28S rRNA iv) 23S rRNA

4 Which of the following mechanisms will remove uracil and incorporate the correct base?
i) Direct repair ii) Base excision repair
iii) Mismatch repair iv) Nucleotide excision repair

5 Name the type of mutation in which the cause of mutation is not known?
i) Spontaneous mutation ii) Suppressor mutation
iii) Nonsense mutation iv) Mis-sense mutation

SECTION - B (15 Marks)
Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks (5 x 3 = 15)

6 a. Outline the Hershey chase bacteriophage experiment.
OR
b. Describe the transformation of gene transfer in microorganism.

7 a. Explain the features of Eukaryotic RNA polymerases.
OR
b. Summarize the termination of prokaryotic RNA transcription.

8. a. Explain the salient features of genetic code.
OR
b. State the post translational modification of proteins.

Cont...

9 a. Summarize the depurination and deamination of DNA.

OR

b. Describe the direct repair mechanism of DNA.

10 a. Bring out the gene mutation.

OR

b. Narrate the composite and non-composite transposons.

SECTION -C (30 Marks)

Answer **ALL** questions

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

11 a. Discuss the initiation of eukaryotic DNA replication.

OR

b. Highlight the termination of prokaryotic DNA replication.

12 a. Outline the eukaryotic RNA transcription factors.

OR

b. Point out the initiation of prokaryotic RNA transcription.

13 a. Trace the composition of eukaryotic ribosomes.

OR

b. Discuss the elongation of prokaryotic protein synthesis.

14 a. Discuss the regulation of Lac operon.

OR

b Highlight the SOS response of DNA mechanism.

15 a. Point out the Holliday model for homologous recombination.

OR

b. Elucidate the missense and non sense mutations.

Z-Z-Z END