SUB.CODE: 20PBC2C7

REG.NO: | | | | | | | | | | |

DHANALAKSHMI SRINIVASAN COLLEGE OF ARTS & SCIENCE FOR WOMEN (AUTONOMOUS)

(For Candidates admitted from 2020 - 2021 onwards)

PG DEGREE EXAMINATIONS APRIL - 2021

M.Sc., - BIOCHEMISTRY

CELL AND MOLECULAR BIOLOGY

Time: 3 Hrs **Max.Marks: 75**

PART - A

CHOOSE THE CORRECT ANSWER **(10X1=10)**

1. _____ aneuploidy is better tolerated.

a) Nullisomic b) Autosomal c) Sex chromosomal d) Chromosome 13

2. Centromeric DNA was initially defined in _____

a) Bacteria b) Fungi c) Yeast d) Human

3. ..... enzyme can cleave and join DNA molecules

a) Gyrase b) DNA ligase c) DNA polymerase d) Primase

4. The approximate length of Okazaki fragments in prokaryotes is:

a) 100-200 nucleotides b) 500-1000 nucleotides

c) 1000-2000 nucleotides d) 1500-2500 nucleotides

5. In prokaryotes, RNA polymerase catalyzes the synthesis of:

a) mRNA b) rRNA c) tRNA d) All of the above

6. In eukaryotes, the consensus promoter sequences (TATA box) that are required for initiation of transcription is generally present

a) 10 nucleotide upstream of transcription start site (TSS) b) 25 nucleotide upstream of TSS

c) 10 nucleotide downstream of TSS d) 25 nucleotide downstream of TSS

7. Translation is the process in which

a) DNA is formed on DNA template b) DNA is formed on RNA template

c) RNA is formed on DNA template d) Protein is formed on RNA template

8. Which step of translation does not consume a high energy phosphate bond?

a) translocation b) Amino acid activation

c) aminoacyl tRNA biniding to A site d) Peptidyl transferase reaction.

9. Which of the following DNA repair mechanism is known as the 'cut and patch mechanism'?

a) Photoreactivation b) Nucleotide excision repair

c) Base excision repair d) Mismatch repair

10. DNA helicase enzyme involved in base excision repair mechanism is -------

a) DNA helicase I b) DNA helicase II

c)DNA helicase III d) DNA helicase IV

PART- B

ANSWER ALL THE QUESTIONS **(5X7=35)**

11. a) Distinguish between Histone & Non histone proteins.

(OR)

b) Describe briefly the structure and function of prokaryotic chromosome.

12. a) Elucidate different types of Transposons.

(OR)

b) Elaborate Eukaryotic DNA polymerases and their roles in replication.

13. a) Describe in detail about the post transcriptional modification in mRNA.

(OR)

b) Explain about transcription factor.

14. a) Explain about wobble hypothesis.

(OR)

b) Briefly describe Heat shock proteins.

15. a) Write an essay on DNA repair mechanism.

(OR)

b) Write an essay on cancer as a genetic disease and write notes on oncogenes.

PART - C

ANSWER ANY THREE QUESTIONS **(3X10=30)**

16. Write short notes on i. Hetrochromatin ii. Euchromatin iii. nucleosome iv. Sex chromosomes v. Structural chromosome

17. Comment on initiation, elongation & termination events in prokaryotic DNA replication.

18. Compare and contrast the process of transcription in prokaryotes and eukaryotes.

19. Distinguish between prokaryotic and eukaryotic translation.

20. Give a brief description of mutagens and its types.