

[36/A9]

Seat No.: _____

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SARDAR PATEL UNIVERSITY

T.Y.BSc V SEMESTER EXAMINATION NOVEMBER 2019

BIOCHEMISTRY:USO5CBCH01

TITLE: MOLECULAR BIOLOGY-I

Date: 11/11/19; Monday Time: 10:00 AM TO 01:00 PM TOTAL MARKS: 70

Q.1 Select proper option from following MCQ. [10]

- 1) In an adult human body, total DNA length is approximately _____ km.
a) 1×10^{11} b) 1×10^2 c) 2×10^2 d) 2×10^{11}
- 2) In human mt DNA is _____.
a) linear single standard b) ds linear c) ss circular d) circular duplex
- 3) _____ genes are involved in the process of malignant transformation.
a) designes gene b) regulator c) pseudogenes d) oncogenes
- 4) Rate of helicase in vitro is _____ bp/sec.
a) 500-1000 b) 1000 - 1500 c) 1500-2000 d) 2000-2500
- 5) Tus protein is required in _____.
a) termination b) elongation c) initiation d) origin
- 6) D- loop types of replication is observed in _____.
a) mitochondria b) chloroplast c) nucleus d) nucleolus
- 7) RNA polymerase III has the central function of synthesizing _____.
a) r RNA b) mRNA c) 28 s rRNA d) tRNA
- 8) TATA box is found about _____ base pairs before start site.
a) -10 b) -15 c) -20 d) -25
- 9) Shine dalgarno sequence interact with _____.
a) ribosome b) tRNA c) mRNA d) rRNA
- 10) _____ act as a template for protein synthesis.
a) ribosome b) tRNA c) rRNA d) mRNA

Q2. Answer in short.(Any ten) [20]

1. Define gene and genome.
2. Write in short on minichromosome.
3. Comment on: Mitochondria is known as autonomas organells.
4. Define replisome.
5. Write fundamental rules of DNA replication.
6. Comment on multiple origin is universal feature of eukaryotic cells.
7. Write difference between group I and group II intron.
8. Write role of guanylyl transferase.
9. Comment on : frequent appearance of new strains of disease causing retroviruses.

(1)

(PTO)

10. What do you know about SRP cycle.
11. What is molecular chaperones.
12. Comment on: Ribosome is complex molecular machine.

Q3.: Short note on : (a) Nucleosome [05]

(b) Eukaryotic genome. [05]

OR

Q3.: Short note on : (a) Concept of gene. [05]

(b) Prokaryotic genome [05]

Q4. Explain in detail: DNA replication is semi conservative. Explain by experiment. [10]

OR

Q4. 5'→3' and 3'→5' exonuclease activity of DNA polymerase. [10]

Q5. Explain:

- a. 5' cap formation. [5]
b. Splicing mechanism of group IV. [5]

OR

Q5. Write short note on:

- a. Reverse transcriptase. [5]
b. Promoters. [5]

Q6. Explain the following:

- a) Activation of amino acids. [5]
b) Chain initiation. [5]

OR

Q6. Explain the following:

- a) Chain termination. [5]
b) Inhibition of protein synthesis by antibiotics. [5]