

SEAT No. _____

NO. OF PRINTED PAGES: 02

[91 & A-60]

SARDAR PATEL UNIVERSITY
B.Sc. V SEMESTER EXAMINATION

Monday, 09-04-2018

2:00 P.M TO 4:00 P.M

BIOTECHNOLOGY: US05CBIT01

MOLECULAR BIOLOGY

Total Marks: 70

Q.1 Multiple Choice Questions.**[10]**

- i) Which of the following enzyme is not involved in the replication?
 - a) Helicase
 - b) Reverse transcriptase
 - c) Topoisomerase
 - d) Primase
- ii) During replication, the template is read in _____ direction and new strand synthesized in _____ direction.
 - a) 3' - 5' & 5' - 3'
 - b) 5' - 3' & 5' - 3'
 - c) 5' - 3' & 3' - 5'
 - d) 3' - 5' & 3' - 5'
- iii) _____ process is involved in DNA repair?
 - a) Conjugation
 - b) Homologous Recombination
 - c) Transposition
 - d) Reversion of mutation.
- iv) Which of the following would you expect to find of took apart a spliceosome?
 - a) RNA only
 - b) Protein only
 - c) Both RNA and Protein
 - d) Neither RNA nor Protein
- v) What is the main function of tRNA in relation to protein synthesis?
 - a) Inhibit protein synthesis
 - b) Identifies amino acids & transport them to ribosome
 - c) Proof reading
 - d) All of the above.
- vi) The enzyme involved in activation of amino acid is _____.
 - a) ATP synthetase
 - b) Aminoacyl tRNA synthetase
 - c) Aminoacyl mRNA synthetase
 - d) Aminoacyl rRNA synthetase.
- vii) During translation the role of enzyme peptidyl transferase is _____.
 - a) Transfer of phosphate group
 - b) Amino acid activation
 - c) Peptide bond formation between adjacent amino acids
 - d) Binding of ribosome subunit to m-RNA.
- viii) eRF1 is the release factor in eukaryotes that requires _____.
 - a) ATP for its binding to ribosome
 - b) GTP for its binding to ribosome
 - c) ATP and GTP for its binding to ribosome
 - d) Mn^{+2} for its binding to ribosome.
- ix) P elements which evolved the capacity to regulate P elements movement are known as _____.
 - a) R cytotype
 - b) P cytotype
 - c) C cytotype
 - d) M cytotype
- x) ORF1 gene in retrotransposons encodes _____.
 - a) Transposase
 - b) DNA binding proteins
 - c) RNA binding proteins
 - d) Both a and c.

(P.T.O.)

Q.2 Answer the following questions in short. (Attempt any 10) [20]

- i) What do you mean by shortening of chromosomes?
- ii) Give an importance of Rec ABC protein in DNA repair.
- iii) How thymine dimer occurs in DNA?
- iv) Name the enzymes involved in 5' capping.
- v) Define enhancers and write its functions.
- vi) Define RNA splicing.
- vii) Write about translocation event of translation.
- viii) What is kozak sequence?
- ix) Write in brief about protein targeting.
- x) Give the functions of Chi sequence in recombination.
- xi) IS elements are also called inverted terminal repeats. – Comment on this sentence.
- xii) Give the full form of -- a) CPSF b) TAFs c) SnRNPs d) CstF

- Q.3 a) Write about the end replication problem with its perfect solution. [06]**
b) Discuss post replication repair in detail. [04]

OR

- Q.3 a) Write a descriptive note on DNA damage by different radiation. [06]**
b) Explain the process of elongation of eukaryotic replication. [04]

- Q.4 a) Explain initiation of transcription in eukaryotes. Elaborate the role of initiation factors involved in it. [06]**
b) Give an account on 5' capping. [04]

OR

- Q.4 a) Define Splicing. Write a detail note on splicing of m-RNA. [06]**
b) Write a note on 3' polyadenylation. [04]

- Q.5 Write a diagrammatical note on initiation of eukaryotic translation [10]**

OR

- Q.5 Give an account on post translation modification. [10]**

- Q.6 a) Describe the Ac - Ds elements as transposable elements. [06]**
b) Explain P elements with its map. [04]

OR

- Q.6 a) Explain the mechanism for transposition of LTR retrotransposons. [06]**
b) Write about copia with its diagram. [04]

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