

[41/A12]

SEAT No. _____

No. of Printed Pages : 2

SARDAR PATEL UNIVERSITY

B.Sc (Vth SEM) (CBCS) EXAMINATION

Monday, 22nd OCTOBER -2018

US05CBIT01: MOLECULAR BIOLOGY

TIME – 10.00 am TO 1.00 pm

Total Marks – 70

Note: Figures to the right indicate full marks

Q-1 Multiple Choice Questions (Each question of one mark) [10]

- 1) Single strand exchange is the result of
 - (a) Recombination repair
 - (b) SOS response
 - (c) Mismatch repair
 - (d) Direct repair
- 2) Which of DNA polymerase synthesize the leading strand
 - (a) Pol β
 - (b) Pol α
 - (c) Pol ϵ
 - (d) All the above
- 3) Eukaryotic DNA replication is being regulated by
 - (a) Cdks
 - (b) RFC
 - (c) PCNA
 - (d) NCR
- 4) Mature eukaryotic mRNAs have a 5' cap that is residue of
 - (a) 7- methylguanosine
 - (b) 2-guanosine
 - (c) 3- methylguanosine
 - (d) 4- methylguanosine
- 5) Which of the following is true for RNA processing in eukaryotes?
 - (a) Addition of 5' cap
 - (b) Addition of a poly A tail
 - (c) Splicing
 - (d) All the above
- 6) Shifting of ribosome from one codon to another is known as
 - (a) Translocation
 - (b) Transversion
 - (c) Transition
 - (d) Transformation
- 7) Which protein gives the correct folding structure to synthesized protein
 - (a) Signal sequence
 - (b) Chaperone
 - (c) Ribosome
 - (d) a and c
- 8) The first step in the biosynthesis of polypeptide is catalyzed by
 - (a) Terminal transferase
 - (b) Aminoacyl-t RNA synthase
 - (c) Peptidyl transferase
 - (d) Initiation protein
- 9) Which of the following is also called selfish DNA
 - (a) Transposon
 - (b) Transpose
 - (c) Plasmid
 - (d) Pol element
- 10) Which of the following enzymes is essential for most transposition events
 - (a) Transposase
 - (b) Telomerase
 - (c) DNA polymerase
 - (d) Invertase

(1)

(P.T.O.)

Q-2 Attempt any ten short questions (Each question of 2 marks) [20]

- 1 Define Telomerase and give its functions
- 2 Define DNA Polymerase? Give its uses
- 3 Define mutation? How it occurs
- 4 What is the role of RNA polymerases?
- 5 Define promoters?
- 6 What are enhancers? Give its significance
- 7 What is SRP? Give its significance
- 8 What is the importance of translocase in translation?
- 9 Enlist and give the full name of stop codons
- 10 What is copia element?
- 11 Define transposons and give its examples
- 12 What does the DNA region PCR encodes for?

Q-3

- (a) Describe the process of initiation of replication with its regulation. [06]
- (b) Enlist types of DNA damages and explain any two [04]

OR

- (a) Discuss the termination mechanism of eukaryotic replication [04]
- (b) Explain the excision repair system [06]

- Q-4**
- (a) Describe the process of initiation of transcription. [05]
 - (b) Discuss the modification of mRNA at 5' and 3' terminals [05]

OR

- (a) Describe the splicing of Eukaryotic mRNA in detail [05]
- (b) List the different types of intron & Explain the splicing of group III introns [05]

Q-5

- (a) Explain in detail the elongation process of translation in eukaryotes [10]

OR

- (a) Discuss in detail the post translational modification process in eukaryotes [10]

Q-6

- (a) Give an account on the mechanism of transposons [05]
- (b) Discuss the application of transposons in r-DNA technology [05]

OR

- (a) Give a descriptive account on bacterial transposons [05]
- (b) Describe the virus like transposable element with example. [05]

— X —
②