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(5, 6 & A-41) SEAT No._____

SARDAR PATEL UNIVERSTITY
M.Sc (INTEGRATED) BIOTECHNOLOGY- VII SEMESTER
FINAL EXAMINATION (AT_KT), April 2018.
M. Sc. IG- EBT/IBT - 7th SEMESTER

PS07CIGEB4/ PS07CIGIB4: Advanced Molecular Biology

Date 2nd May 2018 Wednesday **TIME: 2:00 to 5.00pm** **Max. Marks:70**

Q.1 **Attempt all the questions** 1x8=8

(i) .....phosphate group is involved in phosphodiester bond formation.
(a) α (b) β (c) γ (d) δ

(ii) Mcm complex in eukaryotes has following activity
(a) Polymerase (b) ligase (c) helicase (d) exonuclease

(iii) Which of the following statement regarding splicing of transcript is correct.
(a) Exons are spliced and intron are retained in mature mRNA
(b) Several reactions in the splicing process requires hydrolysis of ATP
(c) Splicing takes place in cytosol
(d) Small nuclear RNAs are retained in mature RNA transcript

(iv) The following is not a type of alternative splicing
(a) exon extended (b) intron retained (c) exon shuffling (d) exon skipped

(v) During translation the role of peptidyl transferase is
(a) Transfer of peptidyl group
(b) Amino acid activation
(c) Peptide bond formation between adjacent amino acids
(d) Binding of ribosome subunits to mRNA

(vi) The process of mRNA scanning is driven by
(a) tRNA (b) rRNA (c) Small subunit of ribosome (d) large subunit of ribosome

(vii) p53 is called as "the guardian of genome" as
(a) It prevents genome mutation (b) It kills tumor cells (c) It protects genome from DNA damaging chemicals (d) All of these

(viii) Transposons are also called .....sequences
(a) Complementary (b) Jumping (c) both a& b (d) None of these

2x7=1

Q.2 **Attempt any seven questions**

(i) Give diagrammatic representation of mitochondrial replication.
(ii) Mention the significance of presence of multiple origin of replication in eukaryotic DNA.
(iii) What is the role of mediator complex in transcription?
(iv) Give significance of phosphorylation of RNA polymerase.

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(v) Explain secondary structure of tRNA.
(vi) What is scanning and accommodation. Give its significance.
(vii) Explain cotranslational targeting of protein into endoplasmic reticulum.
(viii) Enumerate differences between P and Ty element
(ix) Mention characteristics of transposable elements.

Q.3 A Explain the role of enzymes and proteins involved in eukaryotic replication process. **06**

B Explain "Eukaryotic chromosomes are replicated exactly once per cell cycle". **06**

B Give an account of chloroplast DNA.

OR

Q.4 A Explain steps in the formation of pre-initiation complex during transcription. **06**

B Explain (i) 5' methyl capping and (ii) 3' Polyadenylation. **06**

B Explain alternative splicing with examples.

OR

Q.5 A Explain elongation phase of translation in detail. **06**

B Describe post-translational modification of proteins taking place in the lumen of endoplasmic reticulum. **06**

B Write a note on protein degradation.

OR

Q.6 A Discuss Ac/Ds system of Maize. **06**

B Discuss the role of cyclins in cell cycle progression. **06**

B Write a note on retinoblastoma gene **06**

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