

[37/A10]

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SARDAR PATEL UNIVERSITY
T.Y. B.Sc EXAMINATION, Vth Semester
Monday, 11th November 2019, 10.00a.m to 01.00p.m.
Biotechnology: US05CBIT01, [Molecular Biology]

NOTE- Figures in the right indicate full marks.

Maximum Marks-70

Q.1. Multiple Choice Questions (10 marks- One Mark for Each MCQ) [10]

1. The enzyme photolyase is used in which repair

- A. Base excision B. Photo reactivation C. Nucleotide excision D. None of these

2. PCNA in eukaryotic replication helps DNA Polymerase in

- A. Processivity. B. Progressivity C. Exonuclease Activity D. Endonuclease Activity.

3. DNA i is a small DNA fragment for

- A. Priming replication C. Chimera synthesis
B. Recombination. D. The synthesis of iRNA

4. Which of the following is not involved in the post transcriptional processing of t-RNA?

- A. Base modification B. Attachment of CCA arm C. Splicing D. Addition of poly-A tail

5. A cis acting factor in eukaryotic transcription is

- A. RNA polymerase II B. Transcription factors C. Enhancers D. All of these

6. The enzyme helps in 5' capping of mRNA is

- A. N7mGuanyl transferase B. RNA 5' triphosphatase C. N7G methytransferas D. Guanul synthase

7. In the N-linked glycoprotein the carbohydrates are attached to which of the following bases

- A. Valine B. Threonine C. Asparagine D. Serine

8. Nuclear localization signal is rich in

- A. Tryptophan and histidine C. Glutamine and asparagine
B. Serine and threonine D. Lysine and arginine

9. Hybrid dysgenesis occurs in which of the following cases?

- A. Crossing between P-female and P-male C. Crossing between P-male and M-female
B. Crossing between M-female and M-male D. Crossing between M-male and P-female

10. Autonomous transposable element in eukaryotic genome

- A. AC element C. Ds of maize
B. SINES D. All the above

(1)

(PTO)

Q.2. Short Question (any 10 question X 2 marks each)

[20]

1. Discuss any four properties of eukaryotic DNA Polymerase.
2. Discuss two main enzymes required for direct repair.
3. What is trans-lesion synthesis? Discuss its importance.
4. Describe enhancer with its function.
5. Enlist any two differences between strong and weak promoter.
6. Discuss the promoter for RNA polymerase I.
7. Describe methylation of amino acid with its significance.
8. Describe the feature of SRP with its function
9. Discuss the function of releasing factor in translation
10. Describe the important feature of transposon.
11. Discuss the various transposition mechanisms?
12. Describe retroposon with an example.

Q.3.a. Describe the mismatch repair with its importance. [5]

Q.3.b. Discuss the problem associated with the termination of eukaryotic replication. [5]

OR

Q.3.a. Enlist the proteins and enzymes associated with eukaryotic replication. [5]

Q.3.b. Describe the SOS repair with its importance. [5]

Q.4.a. Describe the chemical modification of tRNA in detail. [5]

Q.4.b. Discuss the termination of mRNA transcript in detail. [5]

OR

Q.4.a. Describe the initiation of mRNA transcript in detail. [5]

Q.4.b. Describe the processing of rRNA with a neat map. [5]

Q.5.a. Discuss the signal required for transportation of protein in ER and nucleus. [5]

Q.5.b. Describe the elongation of eukaryotic translation. [5]

OR

Q.5.a. Enlist the initiation factors of eukaryotic translation with its function. [5]

Q.5.b. Describe any five post translation modification of nascent protein. [5]

Q.6.a. Describe the P element as a transposable element. [5]

Q.6.b. Discuss the IS element of prokaryotes with its map. [5]

OR

Q.6.a. Describe the retrovirus like transposable element with its map. [5]

Q.6.b. Discuss the Ac-Ds element of maize with its map. [5]

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