

Title: MOLECULAR BIOLOGY-I

Date: 9/4/2018; Monday Time: 2:00 PM TO 4:00 PM TOTAL MARKS: 70

Q1. Select proper option from following Mcqs: [10]

- 1) Which of the following hypothesis is more proper?
 - a) One gene- One RNA
 - b) One gene-One enzyme
 - c) One gene-One polypeptide
 - d) One gene- One protein
- 2) There are about _____ genes present in human being.
 - a) 10,000-15,000
 - b) 15,000-20,000
 - c) 20,000- 30,000
 - d) 30,000-35,000
- 3) In an adult human body total length of DNA is approximately _____ km.
 - a) 2×10^{11}
 - b) 3×10^{14}
 - c) 2×10^{14}
 - d) 3×10^{11}
- 4) PCNA is required for _____ enzyme.
 - a) α
 - b) β
 - c) γ
 - d) δ
- 5) _____ protein synthesizes primers?
 - a) Dna A
 - b) Dna G
 - c) Dna B
 - d) Dna C
- 6) Which of the following protein found in E-coli primosome?
 - a) Protein i
 - b) Protein n
 - c) Protein n'
 - d) All of these
- 7) $\text{RNA} + n\text{ATP} \xrightarrow{\text{N}} \text{RNA}-(\text{AMP})_n + n\text{PPI}$. Here, x= _____
 - a) RNA polymerase
 - b) endonuclease
 - c) Intigrase
 - d) Polyadenylate polymerase
- 8) Which of the following gene is responsible for synthesis of reverse transcriptase?
 - a) LTR
 - b) env
 - c) gag
 - d) pol
- 9) Which of the following modification is possible in milk protein casein?
 - a) Glycosylation
 - b) Methylation
 - c) Phosphorylation
 - d) Carboxylation
- 10) Which of the following protein play a very important role in protein targeting?
 - a) CBPI
 - b) TUS
 - c) eIFB
 - d) SRP

Q2. Answer in very short (Any ten)

[20]

- 1) Give a brief note on Design gene.
- 2) What do you know about mtDNA?
- 3) What is satellite DNA? Write its types?
- 4) Write fundamental reaction for DNA polymerase.
- 5) What do you know about "Rate of replication"?
- 6) Define: Replication and Semi-conservative replication.
- 7) Write difference between Group-I and Group-II intron.
- 8) Explain: Spliceosome.

(P.T.O.)

- 9) Comment: Frequent appearance of new strains of disease causing retroviruses.
10) Comment: mRNA is a template for protein synthesis.
11) Write role of elongation factor of translation.
12) Justify: Ribosomes act as a protein factories.

Q3. Explain in detail.

- a) Types and function of Histone protein. [5]
b) Chromatin [5]

OR

Q3. Explain in detail.

- a) Salient features of Viral genome. [5]
b) Justify the statement: Eukaryotic DNA is much longer than itself. [5]

Q4. Write short note on:

- a) DNA Replication is semi-conservative. [5]
b) Termination of replication. [5]

OR

Q4. Write short note on:

- a) Dna B Protein. [5]
b) Topo-isomerase. [5]

Q5. Explain:

- a) Splicing mechanism of group IV. [5]
b) Termination of translation. [5]

OR

Q5. Explain:

- a) 5' cap formation. [5]
b) Reverse transcriptase. [5]

Q6. Explain in detail: Properties of genetic code. [10]

OR

Q6. Explain in detail: Inhibition of protein synthesis. [10]

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