

[09]

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SARDAR PATEL UNIVERSITY
BSc (V Sem.) Examination
Tuesday, 12 November 2013
10.30 am – 1.30 pm
US05CBCH01 – Biochemistry
Molecular Biology I

Total Marks: 70

Note: Figures to the right indicates full marks.

Q.1 MCQ (one mark each) [10]

- (1) Which one of the following hypothesis is more proper?
(a) One Gene one Protein (b) One Gene one Polypeptide
(c) One Gene one Enzyme (d) One Gene one Hormone
- (2) Human cells have almost _____ times as much DNA as E-Coli?
(a) 7 (b) 70
(c) 700 (d) 7000
- (3) In Human being each cell contains about _____ of DNA.
(a) 0.2 m (b) 2 m
(c) 22 m (d) 0.02 m
- (4) What is polymerization rate of DNA Polymerase III ?
(a) 50-100 (b) 150-200
(c) 250-1000 (d) 1500-2000
- (5) DNA ligase capable of sealing _____ breaks/min.
(a) 75 (b) 175
(c) 750 (d) 7500
- (6) 5' → 3' Exonuclease activity is the activity of _____ Enzyme.
(a) DNA Pol. I (b) DNA Pol. II
(c) DNA Pol. III (d) DNA Pol. IV
- (7) In transcription RNA sequence is complementary to _____ strand.
(a) Template (b) Coding
(c) both a and b (d) primer
- (8) How long is tail of euk. mRNA?
(a) 2 to 20 poly (A) (b) 20 to 250 poly (A)
(c) 250 to 300 poly (A) (d) 300 to 350 poly (A)
- (9) Which of the following is termination codon
(a) UAA (b) UAG
(c) UGA (d) All of these
- (10) Which of the following modification is required for milk protein casein?
(a) Phosphorylation (b) Methylation
(c) Carboxylation (d) Glycosylation

Q.2 Answer in very short (any ten): [20]

- (1) Give reason: Chromatin is Chemically Compound Protein.
- (2) Comment on: Histones are small basic protein.
- (3) Explain the term Nucleosomes.

- (4) Write fundamental reaction of DNA polymerase.
- (5) What do you know about E-Coli replication origin?
- (6) What do you know about Replisome?
- (7) Write function of following Enzyme in Transcription:
(a) Kinase (b) Phosphohydrolase.
- (8) Write function of 5' Cap of mRNA.
- (9) Write difference between group I and group II Intron.
- (10) Define Genetic Code with examples.
- (11) Give reason: mRNA is a template for protein synthesis.
- (12) What do you know about Termination Codon?

Q.3 Explain the following:

- (a) Salient features of Viral Genome [06]
- (b) DNA molecules of Bacteria are much longer than Bacteria itself [04]

OR

Q.3 Explain in detail Salient features of Prokaryotic genome. [10]

Q.4 Explain in short.

- (a) Okazaki fragments [05]
- (b) 5' → 3' polymerization activity of DNA polymerase. [05]

OR

Q.4 Write short note on:

- (a) Topoisomerase [05]
- (b) Termination of Replication [05]

Q.5 Explain in short:

- (a) Poly (A) Tail formation in mRNA [05]
- (b) Splicing mechanism of group I [05]

OR

Q.5 Explain in short:

- (a) Initiation of Transcription [05]
- (b) Splicing mechanism of group II [05]

Q.6 Explain in detail Initiation of protein synthesis. [10]

OR

Q.6 Explain in detail Termination of Translation. [10]

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