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SARDAR PATEL UNIVERSITY
B.Sc (IV Semester) EXAMINATION
Tuesday, 12th April 2016
10:30 am to 12:30 pm
US04EMBI02: MOLECULAR BIOLOGY-II

Total Marks- 70

Note: i) Attempt all questions.
ii) Marks are indicated on the right hand side.

Q.1 **Answer the following Multiple Choice Questions. All are compulsory** 10

1. RNA polymerase used for the transcription of genes require a _____ template
a) rRNA b) DNA c) RNA d) mRNA
2. Which of the following is true for RNA synthesis (transcription)?
a) RNA synthesis is always in 5' to 3' direction b) RNA polymerase needs a primer to initiate transcription c) New nucleotides are added on to the 3'OH of the ribose sugar d) Non of the above
3. Types of RNA Polymerases in eukaryotic cells are
a) 2 b) 3 c) 4 d) 5
4. Segments of mRNA removed during splicing are
a) Introns b) Exons c) Promoter regions d) Integrator regions
5. Gene expression is formation of
a) DNA-RNA-Protein b) RNA-DNA-Protein c) RNA- RNA-Protein d) DNA- DNA-Protein
6. Most characterized type of core promoter in eukaryotes is
a) Unit box b) RNA box c) TATA box d) DNA box
7. tRNA recognizes ribosome by
a) TipC loop b) DHU loop c) Anticodon d) AA-site
8. One end of tRNA matches genetic code in three nucleotide sequences called
a) Genetic code b) Codon b) Anticodon d) None of these
9. Genetic code translates the language of
a) Amino acids into that of RNA b) mRNA RNA into that of protein c) Protein into that of DNA d) RNA into that of DNA
10. The inducer for the lac operon is
a) Lactose b) Allolactose c) β-galactosidase d) Galactose

Q.2 Attempt **any ten** of the following 20

1. What is sigma factor?
2. List the properties of prokaryotic RNA Polymerase.
3. **Define transcription and transiation.**
4. List the requirement of transcription
5. How protein synthesis terminated?
6. What is 5' caping?
7. What is gene expression?
8. Write a note on concept of gene.
9. What is the importance of tRNA during protein synthesis?
10. What is spliceosome?
11. What do you know about termination codon?
12. What is operon?

P.T.O

Q3	A	Explain the importance of TATA and GC box along with the initiation process in prokaryotic DNA transcription.	05
	B	Explain - rho dependent and rho-independent termination of transcription.	05
		OR	
Q3	A	With the help of neat diagram explain elongation of transcription.	06
	B	Write difference between closed and open promoter.	04
Q4	A	Discuss in detail eukaryotic RNA polymerases	06
	B	Differentiate between prokaryotic and eukaryotic transcription.	04
		OR	
Q4	A	Explain synthesis of mRNA in detail.	05
	B	Explain post transcriptional modification of tRNA.	05
Q5	A	Explain in detail initiation of translation.	05
	B	Write a note on activation of amino acids.	05
		OR	
Q5	A	Explain the role of tRNA in translation.	05
	B	Write a note on post translation mdification.	05
Q6		Elucidate positive and negative regulation of operon.	10
		OR	
Q6		Explain in detail Lac operon.	10

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