



BRAINWARE UNIVERSITY

Term End Examination 2023
Programme – M.Sc.(MB)-2022
Course Name – Molecular Biology
Course Code - MMBC201
(Semester II)

Full Marks : 60

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following:

c) 3'->5' direction on 5'->3' strand d) 5'->3' direction on 3'->5' strand Select from the following that The complex of RNA polymerase, DNA template and RNA transcript is called a) transcription bubble b) replication bubble c) a translation bubble d) none of these (iv) In Prokaryotes, identify the ribosomal binding site on mRNA a) Hogness sequence b) Shine-Dalgarno sequence c) Pribnow sequence d) TATA box (v) Recall, denaturation of DNA molecule can be studied by measuring its absorbance wave length a) 260 nm b) 560 nm c) 470 nm (vi) In eukaryotic replication helicase loading occurs atlocate the right phase a) G1 phase b) G0 phase				
c) RF3 (ii) Indicate the direction of the synthesized transcript that is produced by RNA polymer a) 3'->5' direction on 3'->5' strand c) 3'->5' direction on 5'->3' strand d) 5'->3' direction on 5'->3' strand c) 3'->5' direction on 5'->3' strand d) 5'->3' direction on 3'->5' strand d) 5'->3' direction on 5'->3' strand d) 5'->3' direction on 5	(i)			
a) 3'->5' direction on 3'->5' strand b) 5'->3' direction on 5'->3' strand c) 3'->5' direction on 5'->3' strand d) 5'->3' direction on 3'->5' strand iii) Select from the following that The complex of RNA polymerase, DNA template and RNA transcript is called a) transcription bubble b) replication bubble c) a translation bubble d) none of these iv) In Prokaryotes, identify the ribosomal binding site on mRNA a) Hogness sequence c) Pribnow sequence d) TATA box v) Recall, denaturation of DNA molecule can be studied by measuring its absorbance wave length a) 260 nm c) 470 nm b) 560 nm c) 470 nm d) 570 nm vi) In eukaryotic replication helicase loading occurs atlocate the right phase a) G1 phase b) G0 phase		•	,	
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c) Pribnow sequence d) TATA box (v) Recall, denaturation of DNA molecule can be studied by measuring its absorbance wave length a) 260 nm b) 560 nm c) 470 nm d) 570 nm (vi) In eukaryotic replication helicase loading occurs atlocate the right phase a) G1 phase b) G0 phase	(iv)	c) a translation bubble	d) none of these	
c) 470 nm d) 570 nm (vi) In eukaryotic replication helicase loading occurs atlocate the right phase a) G1 phase b) G0 phase	(v)	c) Pribnow sequence Recall, denaturation of DNA molecule can be stud	d) TATA box	
	(vi)	c) 470 nm	d) 570 nm	
(vii) Choose the name of the codon streach that is in the middel of AUG and a stop code	(vii)	c) S phase	d) G2 phase	

	Grou	p-C	
0	rganize the spliceosome formation		(3)
6. Co	onnect how does release factor trigger termination OF	n of protein synthesis	(3) (3)
	4. Write the Structure of transcription unit5. Is translation faster in prokaryotes or eukaryotes? Justify your reason		
3. In	dicate Ribosomal structure and their assembly		(3) (3)
	efine reason of Low complexity DNA Sequences Re	eanneal Faster than Do High Complexity	(3)
	Grou (Short Answer Ty	-	3 x 5=15
	a) Denomination c) Segregation	b) Translationd) Transcription	
(xv)	Identify the process that includes the copying of DNA to in theform of mRNA nucleotides		
	a) Sub unit associationc) Initiation & elongation	b) Promoter bindingd) Cation binding	
(xiv)	lagging strand Show the activity of the ω subunit of RNA polymorphisms as ω		
	c) Formation of a phosphodiester bond between the 3'-OH of one Okazaki fragment and the 5'-phosphate of the next on the	d) Base pairing of the template and the formed DNA strand	newly
	a) Addition of new nucleotides to the leading strand	b) Addition of new nucleotide to the lag	gging
(xiii)	c) Pribnow sequence Write the function of ligase during DNA replication	d) TATA box	
(xii)	c) AUGCCCAACCGUUAUUCAUGCUAG locate the ribosomal binding site on mRNA in pro a) Hogness sequence	d) AUGUCGACAGUCUAAAACAGCGGG bkaryotic system. b) Shine-Dalgarno sequence	
	a) AUGUUAAUAGACGAGUAGCGACGAUGU	b) AUGAGACGGACUGCAUUCCCAACCUG	GΑ
(xi)	c) Cation binding select the sequence of mRNA that will be transla polypeptide chain	d) Termination ted to a 8 amino acid containing	
(X)	Write the function of the beta subunit of polyme a) Promoter binding	b) Elongation	
/v/\	c) rRNA	d) None of these	
(ix)	connect the splicing of Exons with a) mRNA	b) tRNA	
	a) tRNA c) rRNA	b) mRNA d) none of these	
(,	the sequence of amino acid are the molec	ules	
(viii)	c) Colinearity Complete the sentence, The adapter molecules t	d) Degenerate	
	a) Open reading frame	b) TATA box	

(Long Answer Type Questions) 5 x 6=30

7. DNA replication is bidirectional and discontinuous; explain your understanding of those (5) concepts 8. Interpret your views on the rolling circle method of Replication over eukaryotic one (5) 9. Illustrate with example why regulation of transcription frequently involves the promoter and (5) protein interactions with the promoter 10. Diagram the spliceosome mediated RNA splicing mechanism (5) 11. "In E. coli, a particular tRNA normally has the anti-codon 5'-GGG-3', but because of a mutation (5) in the tRNA gene, the tRNA has the anticodon 5'-GGA-3' a. Organize the codon the normal tRNA would recognize b. Organize the codon the mutant tRNA would recognize 12. The cleavage and polyadenylation specificity factor binds to the upstream of Poly A signal... (5) dissect in detail OR Glycosylation is important in protein trafficking and cell interactions__Dissect it (5)