U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

April 2024 Semester End Main Examinations

Programme: B.E. **Semester: III**
Branch: Biotechnology **Duration: 3 hrs.**
Course Code: 23BT3PCCMB **Max Marks: 100**
Course: Cell and Molecular Biology

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

				CO	*PO*	Marks
			UNIT - I			
1	a)	With an appropriate diagram, describe fluid mosaic model of membrane. Why did it get the name 'Fluid Mosaic'?		*CO 1*	-	**07**
	b)	Explain the role of ER in translation process		*CO 2*	*PO1*	**08**
	c)	Compare and contrast Genome packing in prokaryotes and eukaryotes.		*CO2*	*PO1*	**05**
		OR				
2	a)	What is the role of chromatin in transcriptional regulation? What are the two classes of chromatin with respect to gene transcription?		*CO 2*	*PO1*	**07**
	b)	Which organelle(s) are responsible for protein PTM? What is their role in PTM?		*CO 2*	*PO1*	**07**
	c)	What are the three types of DNA replication?		*CO 2*	*PO1*	**06**
		UNIT - II				
3	a)	What are transposons? How are they different from retrotransposons?		*CO 3*	*PO1*	**10**
	b)	Define apoptosis and necrosis.		*CO 3*	*PO1*	**5**
	c)	Describe genetic recombination in eukaryotes.		*CO 3*	*PO1*	**5**
		UNIT - III				
4	a)	Discuss the mechanism of post transcriptional modifications in mRNA.		*CO 2*	*PO1*	**10**
	b)	What is the function of intron? Jusify. Why are introns removed?		*CO 2*	*PO1*	**5**
	c)	Elaborate on RNA editing tool and its medical significance.		*CO 4*	*PO6*	**5**

			OR			
	5	a)	Describe the mechanism and consequences of spliceosome with a suitable example.	*CO 2*	*PO1*	**10**
		b)	Enlist any 4 transcription inhibitors.	*CO 1*		**4**
		c)	How do transcription factors work?	*CO 2*	*PO1*	**6**
			UNIT - IV			
	6	a)	Illustrate and explain the steps involved in protein synthesis by translation process with a suitable diagram.	*CO 2*	*PO1*	**8**
		b)	Elaborate on any two post and co-translational modifications in proteins.	*CO 2*	*PO1*	**8**
		c)	What is the main cause of protein misfolding?	*CO 4*	*PO6*	**4**
			UNIT - V			
	7	a)	Illustrate the model of Lac operon with a neat diagram.	*CO 2*	*PO1*	**10**
		b)	Distinguish between mono and poly cistronic gene with a neat illustration.	*CO 2*	*PO1*	**5**
		c)	Explain the gene regulation in prokaryotes.	*CO 2*	*PO1*	**5**

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