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: Chemical Engineering **Duration: 3 hrs.**
Course Code: 23CH3BSBFE **Max Marks: 100**
Course: Biology for Engineers

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)		Explain the various sources of nutrients required to formulate the growth medium.	CO1	PO1	10
	b)		Illustrate the transient growth kinetics. With a neat sketch explain the phases of growth.	CO1	PO1	10
			OR			
2	a)		Discuss the types of sterilization of microorganisms.	CO2	PO1	10
	b)		What are the environmental factors affecting Microbial growth kinetics? Explain in detail.	CO2	PO1	10
			UNIT - II			
3	a)		What are proteins? Explain the classification, structure and functions of proteins.	CO4	PO1	10
	b)		List the different types of vitamins and their respective functions in the body.	CO4	PO1	10
			UNIT - III			
4	a)		What is genetic engineering? Enlist the applications of genetic engineering.	CO3	PO2	6
	b)		Compare and contrast the structures and functions of DNA and RNA.	CO3	PO2	6
	c)		Explain the lock-and-key model with the induced fit model for enzymatic reactions.	CO3	PO2	8
			OR			
5	a)		How are enzymes classified based on their actions? Explain with suitable example.	CO3	PO2	10
	b)		Define chromosomes. Explain the chromosome structure with a neat diagram and list its applications.	CO3	PO2	10

			UNIT - IV			
	6	a)	Explain the importance of aseptic techniques in tissue culture.	***CO5***	***PO1***	**6**
		b)	Discuss the role of growth regulators in tissue culture.	***CO5***	***PO1***	**6**
		c)	Demonstrate the proper handling and care of cells during routine culture maintenance.	***CO5***	***PO1***	**8**
			UNIT - V			
	7	a)	Assess the impact of autoimmune diseases on T cell activation and regulation.	***CO2***	***PO1***	**10**
		b)	Explain the properties that make nano biomolecules suitable for biomedical applications.	***CO6***	***PO2***	**10**

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