Reg.No.:												

VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 90019

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2025
Fifth Semester
Computer Science and Engineering
U23BTOE1 – BIOLOGY FOR ENGINEERS
(Common to EEE, ECE, BME and IT)
(Regulation 2023)

Time: Three Hours | Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	State the postulates of modern cell theory.	2	K2	CO1
2.	Label the stages of the cell cycle in a schematic diagram.	2	K1	CO1
3.	Draw the Haworth projection of α- D Glucose and α- D Fructose.	2	K2	CO2
4.	List out the role of derived lipids.	2	K2	CO2
5.	Differentiate between acquired and innate immunity.	2	K2	CO3
6.	Enlist the primary and secondary lymphoid organs.	2	K1	CO3
7.	Compare and contrast the effects of different types of plant hormones (e.g., auxins, gibberellins) on plant growth.	2	K2	CO4
8.	How does bile aid in digestion?	2	K2	CO4
9.	Write the difference between *in situ* and *ex situ* bioremediation.	2	K2	CO5
10.	How do starter cultures influence the texture, flavor, and aroma of dairy products?	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.			Questions	Marks	KL	CO
11.	a)		Draw and label a prokaryotic and eukaryotic cell, showing the main differences between them.	13	K2	CO1
			(OR)			
	b)	i.	Outline the major milestones in the history of cell biology.	4	K2	CO1
		ii.	Describe the cell division of bacteria by binary fission.	9		
12.	a)		Comment on different levels of protein organization and its structural importance.	13	K2	CO2
			(OR)			
	b)		Examine the applications of enzymes in textile and detergent industries.	13	K2	CO2
13.	a)		Analyze the structure and properties of the different classes of immunoglobulins.	13	K3	CO3
			(OR)			
	b)		Write notes on the physical and chemical barriers of the innate immune system.	13	K3	CO3
14.	a)		Sketch the photosynthesis pathway and explain how it helps increase food production for the growing population.	13	K3	CO4
			(OR)			
	b)	i.	Explain the anatomy of lungs.	6	K3	CO4
		ii.	Elaborate the mechanism of human digestive system.	7		
15.	a)	i.	Discuss the role of microorganisms in the leaching of metals from its ores.	6	K4	CO5
		ii.	How is biodegradable waste treated using composting?	7		
			(OR)			
	b)		What are fermented dairy foods? Describe the fermentation process and its role in enhancing the nutritional value of these foods.	13	K4	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.		Questions	Marks	KL	CO
16.	a)	Evaluate the significance of carbohydrates as a source of energy. Classify the types of carbohydrates.	15	K3	CO3
		(OR)			
	b)	Evaluate the importance of mitosis in multicellular organisms for growth, repair, and asexual reproduction.	15	K2	CO1