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: 9003

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – MAY / JUNE 2024
Sixth Semester
Biotechnology
U19BT620 – ENZYME ENGINEERING AND TECHNOLOGY
(Regulation 2019)

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.	Define the Katal as an unit of enzyme activity.	2	K1	CO1
2.	State the Collision Theory of chemical reactions.	2	K1	CO1
3.	Write the Michaelis-Menten equation.	2	K1	CO2
4.	Mention the characteristics of enzyme-catalyzed reactions that follow a ping-pong bi-bi mechanism.	2	K2	CO2
5.	Define suicide inhibition and give an example.	2	K1	CO3
6.	Indicate the concept of allosteric inhibition of enzyme.	2	K2	CO3
7.	Quote the importance of enzyme purification in biochemical research.	2	K2	CO4
8.	List the techniques commonly used for enzyme characterization.	2	K3	CO4
9.	Cite the function of pectinase enzyme in fruit juice production.	2	K2	CO5
10.	Identify the application of protease in beer production.	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.		Questions	Marks	KL	CO
11.	a)	Discuss the factors influencing the choice of units for reporting enzyme activity in different contexts.	13	K1	CO1
		(OR)			
	b)	Explain how the Transition State Theory helps elucidate enzyme catalysis mechanisms.	13	K2	CO1
12.	a)	Discuss the characteristics of enzyme-catalyzed reactions that follow a ping-pong bi-bi mechanism.	13	K2	CO2
		(OR)			
	b)	Compare and contrast the Lineweaver-Burk plot and the Hanes-Woolf plot in terms of their construction and interpretation.	13	K4	CO2
13.	a)	Discuss the specificity and selectivity of iodoacetamide and DIPF towards their target enzymes.	13	K1	CO3
		(OR)			
	b)	Explain how temperature and pH affect enzyme deactivation kinetics.	13	K2	CO3
14.	a)	Compare and contrast the methods used for the enzymatic assay of pectinase and trypsin.	13	K4	CO4
		(OR)			
	b)	Discuss the principles behind spectroscopic methods used for enzyme characterization.	13	K3	CO4
15.	a)	Discuss how collagenase contributes to the breakdown of collagen in aging skin.	13	K2	CO5
		(OR)			
	b)	Describe the mechanisms by which proteolytic enzymes degrade collagen and other proteins in raw hides during leather processing.	13	K2	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.		Questions	Marks	KL	CO
16.	a)	Describe the systematic classification of enzymes according to the Enzyme Commission (EC) numbering system. Provide examples for each class and subclass.	15	K2	CO1
		(OR)			
	b)	Analyze the different types of reversible inhibition and discuss its pharmaceutical importance.	15	K4	CO3