Register No : _____

THE KAVERY ENGINEERING COLLEGE

(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2025

Fifth Semester

Chemical Engineering

CH3015 – Enzyme Immobilisation Technology

Regulations - 2021

Duration : 3 Hrs ***Maximum : 100 Marks***

PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)

Q.No	*Questions*	*BLT*	*CO*	*Marks*
1.	Distinguish catalyst from biocatalyst.	L2	1	2
2.	Mention the sources of the enzymes namely Rennet and Trypsin.	L2	1	2
3.	What is meant by Enzyme Specificity?	L2	2	2
4.	Define competitive inhibition.	L2	2	2
5.	What do you mean by enzyme immobilization?	L2	3	2
6.	Name some materials used in constructing synthetic water-insoluble supports for enzyme immobilization.	L2	3	2
7.	Define Thiele modulus.	L1	4	2
8.	What do you mean by intrinsic kinetics of the immobilized enzyme?	L1	4	2
9.	What are microbial Biosensors?	L2	5	2
10.	Mention any two applications of immobilized enzyme in food industry.	L2	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

Q.No			*Questions*	*BLT*	*CO*	*Marks*
11.	a	i	Explain briefly about Enzyme classification and its nomenclature.	L4	1	8
		ii	Explain in detail about enzyme structure, functionality and its relationship.	L4	1	8
			Or			
	b		Explain in detail about enzyme synthesis, recovery and its purification with suitable examples.	L4	1	16
12.	a		Explain how Michaelis-Menten equation can be derived for enzyme kinetics from first principles.	L4	2	16
			Or			
	b		Derive the rate equation for competitively inhibited enzyme reaction.	L4	2	16
13.	a		Explain in detail about the different methods of enzyme immobilization employed in industries.	L4	3	16
			Or			

	b	Explain briefly about advantages and disadvantages of different methods of enzyme immobilization used in industries.	L4	3	16
14.	a	Explain in detail about Enzyme Kinetics Under External Diffusional Restrictions.	L4	4	16
		Or			
	b	Explain in detail about Enzyme Kinetics Under Internal Diffusional Restrictions.	L4	4	16
15.	a i	Explain briefly about the construction and working principle of any one biosensor with a neat diagram.	L2	5	8
	ii	Write short note on application 0f immobilized enzyme in the production of biofuels.	L2	5	8
		Or			
	b	Explain in detail about the various applications of immobilized enzymes in food industry, textile industry, pharmaceutical industry and in medicine.	L2	5	16