

Register No : _____

THE KAVERY ENGINEERING COLLEGE
(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV /DEC 2024

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)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
1.	Define biocatalysis.	RE	1	2
2.	Identify the sources of enzymes.	UN	1	2
3.	Write the hypothesis of enzyme kinetics.	RE	2	2
4.	Give the effects of environmental factors on enzyme activity.	UN	2	2
5.	Recall characteristics of matrices for immobilisation.	RE	3	2
6.	Classify immobilisation techniques.	UN	3	2
7.	Define Thiele modulus.	RE	4	2
8.	Write on partition effects on enzyme kinetics.	UN	4	2
9.	Define Biofuel.	RE	5	2
10.	Give any two applications of immobilised enzymes in medical industry.	UN	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*13 = 65)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a Explain the classification of enzyme in detail with its nomenclature.	UN	1	13
	Or			
	b Exemplify the source and strategy of purification of enzyme.	UN	1	13
12.	a Outline the process of determination of kinetic parameters of enzyme activity.	AP	2	13
	Or			
	b Assess the different types of kinetic inhibition on enzyme activity.	AP	2	13
13.	a With the help of neat sketch, construct the process of immobilization using different techniques.	AP	3	13
	Or			

	b	Discuss the advantages and disadvantages of various physico-chemical properties on immobilized enzymes.	AP	3	13
14.	a	Demonstrate the internal pore diffusion kinetics in immobilized enzymatic system.	AN	4	13
		Or			
	b	Analyse the effects of electrostatic potential of the microenvironment.	AN	4	13
15.	a	Compare immobilized and non-immobilised enzymatic reactor and conclude that immobilized reactor is having advantage over the other.	AN	5	13
		Or			
	b	Summarize the application of immobilized enzymatic reactor in any two different industries.	AN	5	13

*PART – C (Marks 1*15 = 15)*

<i>Q.No</i>		<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
16.	a	Describe the enzyme structure, functionality, and forces acting on it in stabilizing its structure.	AN	1	15
		Or			
	b	Interpret the external and internal mass transfer effects in heterogeneous biocatalysis.	AN	4	15