

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***B.E/ B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2025***Seventh Semester**Chemical Engineering***OBT355 - Biotechnology for Waste Management****(Common to Civil Engineering)***Regulations - 2021***Duration : 3 Hrs****Maximum: 100 Marks****PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)**

Q.No	Questions	BLT	CO	Marks
1.	What is solid-state fermentation?	L1	1	2
2.	Compare aerobic and anaerobic digestion.	L2	1	2
3.	Define biotransformation.	L1	2	2
4.	Summarize the significance of marine processing of waste biotransformation.	L2	2	2
5.	Tell about enzymatic hydrolysis in the context of biofuel production.	L1	3	2
6.	Differentiate between single-stage and two-stage anaerobic digestion.	L2	3	2
7.	Name two applications of proteases.	L1	4	2
8.	Outline the industrial application of citric acid.	L2	4	2
9.	List two factors that affect the composting process.	L1	5	2
10.	Infer significance of compost quality.	L2	5	2

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

Q.No	Questions	BLT	CO	Marks
11. a	Compare batch and continuous fermentation methods with merits and demerits.	L2	1	16
	Or			
b	Examine the pretreatment methods used in anaerobic digestion processes.	L2	1	16
12. a	Discuss in detail the value addition of waste biomass and its role in a biobased economy.	L2	2	16

Or

	b	Explain the industrial applications of plant biomass.	L2	2	16
13.	a	Classify the types of fermentative processes in biohydrogen production.	L4	3	16
		Or			
	b	Inspect step by step procedure for production of biogas and biomethane.	L4	3	16
14.	a	Build the synthesis of biopolymers through microbial processes.	L3	4	16
		Or			
	b	Identify the process of lactic acid and succinic acid production using microbial fermentation.	L3	4	16
15.	a	Illustrate in detail the factors affecting the composting process.	L2	5	16
		Or			
	b	Explain the role of microorganisms in the composting process.	L2	5	16