

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***UG/PG DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2026***Seventh Semester**Civil / Chemical Engineering***OBT355- BIOTECHNOLOGY FOR WASTE MANAGEMENT***Regulations - 2021***Duration : 3 Hrs****Maximum : 100 Marks****PART – A(ANSWER ALL QUESTIONS) (Marks 10*2=20)**

Q.No	Questions	BTL	CO	Marks
1.	Define anaerobic process.	L1	1	2
2.	What are the factors affecting process efficiency?	L1	1	2
3.	What is biotransformation of biomass?	L1	2	2
4.	Write the different types of plant biomass.	L1	2	2
5.	Compare dark and photofermentative hydrogen production.	L2	3	2
6.	Explain biodiesel production in brief	L2	3	2
7.	Write short notes on pectinolytic enzymes.	L1	4	2
8.	Give any two industrial uses of amylases and lipases.	L1	4	2
9.	State of role of microorganisms in composting	L1	5	2
10.	Classify the types of waste materials used in composting	L2	5	2

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

Q.No	Questions	BLT	CO	Marks
11. a	Discuss the fundamentals of biological process along with aerobic, anoxic and anaerobic processes with neat sketches.	L2	1	16
	Or			
b i	Explain batch and continuous fermentation processes	L2	1	8
ii	Describe the process of solid state and submerged fermentation	L2	1	8
12. a	Discuss the processes of value addition and biotransformation of biomass and marine processing wastes.	L3	2	16
	Or			
b	Evaluate the direct extraction of biochemicals from biomass in relation to plant biomass applications for industrial purposes.	L4	2	16
13. a	Describe the process of biogas, biomethane, bioethanol and biohydrogen production.	L2	3	16
	Or			
b	Examine the principle and process of biodiesel production integrated with enzymatic hydrolysis technologies	L4	3	16
14. a	Describe microbial synthesis of biopolymers and the industrial importance of amylases, proteases, lipases, and pectinolytic enzymes.	L2	4	16
	Or			
b	Explain the microbial production, substrates, and industrial applications of lactic acid, succinic acid, and citric acid.	L3	4	16

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| 15. | a | Explain the types of composting systems including non-reactor and reactor composting, and discuss compost quality parameters. | L2 | 5 | 16 |
| | | Or | | | |
| | b | Discuss the role of microorganisms in composting and the different composting technologies with benefits. | L3 | 5 | 16 |
