

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***M.E DEGREE END SEMESTER THEORY EXAMINATIONS, NOV/DEC 2025***Second Semester**Environmental Engineering***EV4201 / PEVT2421 - Biological Treatment Process for Wastewater***Regulations – 2021 & 2024**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.	What are the objectives of biological treatment?	L1	1	2
2.	Define Biodegradability assessment.	L2	1	2
3.	What you meant by activated sludge Process?	L1	2	2
4.	Write the types of constructed wetland in aerobic treatment process.	L3	2	2
5.	Define the term RBC.	L1	3	2
6.	What are the methods used for Nutrient removal systems in wastewater?	L2	3	2
7.	Differentiate the Attached and suspended growth system.	L3	4	2
8.	What are the methods adopted for the disposal of effluent from septic tanks?	L1	4	2
9.	Write any four Troubleshooting process for Wastewater Treatment Plants.	L3	5	2
10.	Discuss the sludge management facilities in STP.	L2	5	2

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

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a i Explain the principles of aerobic and anaerobic treatment methods.	L2	1	8
	ii What are the Factors affecting the growth of biological treatment?	L2	1	8
	Or			
	b Determination of kinetic coefficients for secondary aerobic treatment.	L2	1	16
12.	a Determine the size of a high rate trickling filter for the following data: Sewage flow = 4.5 million litres per day Recirculation ratio = 1.5 BOD for raw average = 230 mg/l BOD removal in PST = 30 % BOD of treated effluent required = 25 mg/l	L4	2	16
	Or			
	b What do you understand by waste stabilization ponds? Explain it.	L2	2	16
13.	a Explain the Sequencing batch reactors with neat sketch.	L2	3	16
	Or			
	b i Write the process of Reclamation and Reuse of Sewage. With the help of neat sketch explain the sewage recycle plant for a residential complex.	L3	3	8
	ii Write a note on membrane bioreactors.	L2	3	8

14.	a	Design a septic tank with dispersion pit for a hostel with a population of 150 and peak discharge of 205 LPM. Take desludging period as one year. Assume suitable design criteria and draw a neat sketch of the designed tank.	L4	4	16
		Or			
	b	Write in detail about the UASB reactor with neat sketch, advantages and disadvantages.	L2	4	16
15.	a i	A wastewater treatment plant produces sludge of 1000 kg dry solids per day with a moisture content of 97%. The solids are 65% volatile with specific gravity 1.05 and inorganic solids of specific gravity 2.55. Determine the sludge volume of raw sludge, after dewatering to 70% and after incineration.	L4	5	8
	ii	What are the operational problems in sewage treatment plant?	L2	5	8
		Or			
	b i	What are recent advances in sludge management and recovery of energy from sludge?	L2	5	8
	ii	Explain the residue disposal in wastewater treatment.	L2	5	8