

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV/DEC 2025***Sixth Semester**Civil Engineering***CCE334 - Industrial Wastewater Management***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.	Why do you need a bioassay test?	L1	1	2
2.	Compare domestic wastewater with industrial wastewater.	L2	1	2
3.	What is payback period?	L1	2	2
4.	State 10R principle.	L1	2	2
5.	Name the sources of nitrogen and phosphorous contamination.	L2	3	2
6.	List the applications of electrodialysis process.	L2	3	2
7.	Mention the characteristics of sludge.	L2	4	2
8.	What is zero liquid discharge?	L1	4	2
9.	Enlist few toxic contaminants from tanneries.	L2	5	2
10.	Is the wastewater from paper and pulp industries harmful to environment? Why?	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 Explain the various sources and types of industrial wastewater in India.	L2	1	16
	Or			
	b Describe the regulatory requirements for industrial wastewater treatment in India and evaluate their effectiveness in maintaining water quality.	L2	1	16
12.	a i Differentiate between prevention and control of industrial pollution, and discuss the benefits and barriers associated with each approach.	L2	2	8
	ii Discuss various source reduction techniques used to minimize industrial waste.	L2	2	8
	Or			
	b Discuss the importance of cost-benefit analysis and payback period in evaluating pollution prevention options for industries.	L2	2	16
13.	a Explain the importance of flow and load equalization in wastewater treatment and describe its impact on subsequent treatment processes.	L2	3	16
	Or			
	b Discuss the various methods used for removing inorganic constituents from industrial wastewater, including heavy metals, nitrogen, and phosphorus.	L2	3	16

14.	a	i	Discuss the concept of zero effluent discharge (ZED) systems in industrial wastewater management and analyze the benefits and challenges associated with implementing ZED.	L2	4	8
		ii	Evaluate the challenges associated with wastewater reuse, particularly for industrial purposes in India.	L2	4	8
			Or			
	b		Explain the process of joint treatment of industrial and domestic waste water with limitations.	L2	4	16
15.	a	i	Develop a process flow diagram to treat 100 MLD textile effluent in a town.	L3	5	8
		ii	Describe the typical characteristics of tannery wastewater.	L3	5	8
			Or			
	b		Explain the wastewater treatment options for the sugar and distillery industries, highlighting specific treatment methods for their unique wastewater characteristics.	L3	5	16