

THE KAVERY ENGINEERING COLLEGE
(An Autonomous Institution)

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

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.	List the sources and types of industrial Wastewater.	RE	1	2
2.	What is Bioassay test?	RE	1	2
3.	Outline the Waste management Hierarchy.	UN	2	2
4.	Compare BOD and COD.	UN	2	2
5.	How are fats, oils, and grease removed from wastewater?	UN	3	2
6.	What is adsorption, and how is it applied in wastewater treatment?	RE	3	2
7.	Recall zero liquid discharge.	RE	4	2
8.	How the R.O rejects are managed?	RE	4	2
9.	What are the major characteristics of industrial waste water?	RE	5	2
10.	Identify any two primary contaminants in wastewater from the metal finishing 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 Summarize the regulation and standards for treatment and discharge of industrial wastewater in India. Or	UN	1	13
	b Explain about the toxicity of industrial effluents and the major issues on water quality.	UN	1	13
12.	a Write the importance of conducting regular waste minimization assessments and how they contribute to pollution prevention. Or	AP	2	13
	b Identify the role of cost-benefit analysis and pay-back period in decision-making for pollution prevention.	AP	2	13
13.	a Categorize the types of membranes used in wastewater treatment and explain the working mechanism of membrane filtration for pollutant removal. Or	AP	3	13

- | | | | | | |
|-----|---|--|----|---|----|
| | b | Describe the chemical oxidation process used for treating industrial wastewater. Analyze its effectiveness in removing various contaminants. | AP | 3 | 13 |
| 14. | a | Compare the advantages and disadvantages of individual and common effluent treatment plants in managing industrial wastewater. | EV | 4 | 13 |

Or

- | | | | | | |
|-----|---|---|----|---|----|
| | b | Explain the processes involved in sludge thickening and digestion. Discuss how these processes contribute to effective sludge management practices. | EV | 4 | 13 |
| 15. | a | Categorize the processes in a paper and pulp mill. Also discuss the characteristics of waste and the treatment methods to be adopted. | AP | 5 | 13 |

Or

- | | | | | | |
|--|---|--|----|---|----|
| | b | List the characteristics of tannery effluent and discuss any two advance treatment methodology adopted for the effluent. | AP | 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	Explain the working principle, function, advantage and limitations of Ion exchange process for the removal of contaminates from wastewater.	AP	3	15
		Or			
	b	Illustrate the mechanism by which AOP degrades contaminants, the role of hydroxyl radical and its effectiveness compared to traditional methods.	AP	3	15