Register Number:……..

KUMARAGURU
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B.E DEGREE EXAMINATIONS: APRIL / MAY 2023

(Regulation 2018)

Seventh Semester

CIVIL ENGINEERING

U18CEE0013: Industrial Wastewater Treatment

COURSE OUTCOMES

CO1: Characterize industrial effluent and their effects on environmental components
CO2: Implement environmental legislations to prevent and control industrial effluents and Hazardous wastes
CO3: Conduct waste audit in an industry and implement waste minimization techniques.
CO4: Understand the manufacturing process and effluent discharge from various industries and Their management concept
CO5: Select appropriate treatment technologies for treating industrial effluent
CO6: Adopt preventive health and safety measures based on the toxicity effect of industrial Pollutants

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions: -
PART A (10 x 2 = 20 Marks)
(Answer not more than 40 words)

1.	What is population equivalent in industrial wastewater treatment?	CO1	[K2]
2.	State the main purpose of bioassay study	CO1	[K2]
3.	Name any two byproducts of sugar industries	CO2	[K2]
4.	What is strength reduction of wastewater?	CO2	[K2]
5.	Differentiate the terms in industrial wastewater treatment: - Equalization and Neutralization	CO3	[K2]
6.	Give the two important pollutants from thermal power plants	CO3	[K2]
7.	What is industrial waste audit and why it is conducted?	CO4	[K2]
8.	Prove that the volume of sludge is reduced to half when the Moisture content of the sludge is reduced from 95% to 90%	CO5	[K2]
9.	Give any two suggestions to prevent occupational hazards	CO6	[K2]
10.	Write any four safety rules to be followed in an industry	CO6	[K2]

Answer any FIVE Questions: -
PART B (5 x 16 = 80 Marks)
(Answer not more than 400 words)

11.	a)	Explain in detail the effects of Industrial effluents on natural water bodies.	8	CO1	[K2]
	b)	Explain briefly the methods of removal of suspended solids from industrial waste water.	8	CO1	[K2]
12.	a)	Draw a neat sketch and explain the hierarchy of waste management	8	CO3	[K2]
	b)	Explain how cleaner production could be achieved through process modification?	8	CO3	[K2]
13.	a)	What are the different characteristics of distillery industry effluent	8	CO2	[K2]
	b)	What are the methods of wastewater reclamation? Explain	8	CO2	[K2]
14.	a)	Discuss the merits and demerits of joint treatment of industrial wastewater and domestic sewage	8	CO4	[K2]
	b)	Write a brief note on chemical oxidation process of industrial wastewater treatment	8	CO4	[K2]
15.	a)	What is occupational health hazard? Explain with examples	8	CO6	[K2]
	b)	How do you promote health and safety in an industrial environment? Explain	8	CO6	[K2]
16.	a)	What is tanning process and differentiate chrome tanning and vegetable tanning?	8	CO4	[K2]
	b)	How the wastewater from electroplating industry is treated? Explain with a flow diagram	8	CO4	[K2]

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