U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

October 2024 Supplementary Examinations

Programme: B.E. **Semester: IV**
Branch: Chemical Engineering **Duration: 3 hrs.**
Course Code: 23CH4PCPCM **Max Marks: 100**
Course: Pollution Control and Management

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

			CO	PO	Marks
		UNIT - I			
1	a)	Assess the effectiveness of the IS 10500 standard in ensuring safe drinking water in urban versus rural areas in India.	*CO* 1	*PO6*	**10**
	b)	How do different sources of water pollution contribute to the contamination of a local river? Elucidate the pollution impacts on water quality and ecosystem health around the riverbed.	*CO* 1	*PO6*	**10**
		UNIT - II			
2	a)	How do sedimentation and flotation differ in their approach to removing solids from wastewater, and what types of contaminants are each best suited to handle? Explain.	*CO* 2	*PO2*	**07**
	b)	Describe the working and construction of a trickling filter with a neat sketch.	*CO* 2	*PO2*	**07**
	c)	6 mL of wastewater is diluted to 300 mL distilled water in standard BOD bottle. Initial DO in the bottle is determined to be 8.5 mg/L. DO after 5 days at 20°C is found to be 5 mg/L. Determine BOD_5 of wastewater and compute the ultimate BOD.	*CO* 2	*PO2*	**06**
		OR			
3	a)	Discuss an aerated lagoon and illustrate its significance.	*CO* 2	*PO2*	**10**
	b)	Explain the Up-flow Anaerobic Sludge Blanket (UASB) anaerobic reactor used for wastewater treatment with neat sketch.	*CO* 2	*PO2*	**10**
		UNIT - III			
4	a)	Discuss the pros and cons of the ultrafiltration used for treatment of wastewater.	*CO* 3	*PO 6*	**08**
	b)	What is the air stripping method of nitrogen removal? Explain with a neat sketch.	*CO* **4**	*PO7*	**06**

		c)	Name the aerobic process where *Nitrosomonas* bacteria converts ammonium into nitrates and explain the mechanism of conversion.	***CO* 4**	***PO7***	**06**
			UNIT - IV			
	5	a)	Discuss in detail the effects of air pollution on health and vegetation.	***CO* 5**	***PO12***	**10**
		b)	Explain the working principle of an electrostatic precipitator and analyze its effectiveness in removing particulate matter from industrial emissions.	***CO* 5**	***PO12***	**10**
			UNIT - V			
	6	a)	Analyze and categorize the various types of solid waste, and describe their distinct characteristics.	***CO* 5**	***PO12***	**10**
		b)	Describe the current status and trends of e-waste generation in India, highlighting its environmental and economic implications.	***CO* 5**	***PO12***	**10**
			OR			
	7	a)	Discuss the key provisions and responsibilities outlined in the E-Waste Management Rules, 2015. How do these rules aim to manage and reduce electronic waste in India?	***CO* 5**	***PO12***	**10**
		b)	Explain the key provisions and objectives of the Hazardous Waste Management and Handling Rules of 2003, emphasizing their significance in environmental protection and public health.	***CO* 5**	***PO12***	**10**

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