U.S.N.										

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

Autonomous Institute Affiliated to VTU

January / February 2025 Semester End Main Examinations

Programme: B.E. **Semester: VII**

Branch: Chemical Engineering **Duration: 3 hrs.**

Course Code: 22CH7PELC3 **Max Marks: 100**

Course: Recycle and Reuse of Waste Materials for Sustainable Development

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.

			UNIT - I	*CO*	*PO*	Marks
1	a)		Discuss the differences between physical treatment and sustainable treatment for future sustainability.	*CO 1*	*PO2*	**10**
	b)		What is the difference between recycling and material recovery in waste management?	*CO 3*	*PO3*	**10**
			OR			
2	a)		Explain on fluidized-bed incinerator. Enlist the advantage and disadvantages of fluidized bed incinerator.	*CO 2*	*PO1*	**12**
	b)		Is the traditional landfilling process sustainable? Justify the statement with suitable reasoning.	*CO 3*	*PO3*	**08**
			UNIT - II			
3	a)		Elucidate on obstacles for cleaner production and solutions in industries.	*CO 1*	*PO2*	**10**
	b)		Discuss the methodology followed for the cleaner production opportunity assessment.	*CO 2*	*PO1*	**10**
			OR			
4	a)		Write various technique involved in cleaner production process.	*CO 1*	*PO 2*	**12**
	b)		Explain the cleaner production techniques applied for conservation of water and energy in preserved food companies.	*CO 1*	*PO 2*	**08**
			UNIT - III			
5	a)		Explain the environmental impacts of solid waste recycling with suitable example.	*CO 3*	*PO 3*	**10**
	b)		With a neat flow diagram describe plastic waste recycling process.	*CO 5*	*PO 7*	**10**
			OR			

	6	a)	Elucidate with a neat flow diagram the steps for recycling of metal and glass containers.	*CO 3*	*PO 3*	**10**
		b)	Explain the steps for paper waste recycling process.	*CO 5*	*PO 7*	**10**
			UNIT - IV			
	7	a)	Discuss different alternatives to utilize the on-site recycling of bypass dust in cement industry. Can cement industry approach cradle-to-cradle system?	*CO 3*	*PO3*	**12**
		b)	Explain about dry slag granulation with neat dry slag granulator.	*CO 5*	*PO7*	**08**
			OR			
	8	a)	Explain about aluminum smelter with neat smelter diagram.	*CO 4*	*PO 6*	**12**
		b)	Describe the traditional sugar mill process and flow diagram used in Egypt for sugar manufacturing.	*CO 3*	*PO 3*	**08**
			UNIT - V			
	9	a)	Illustrate the significance of capital costs involved in starting a waste management facility.	*CO 4*	*PO11*	**10**
		b)	Explain the different types of financing facilities available for waste management system for sustainable development.	*CO 6*	*PO12*	**10**
			OR			
	10	a)	Explain the process to estimate the required capital and operating cost for a waste management facility.	*CO 4*	*PO11*	**10**
		b)	Elucidate on scope and magnitude of waste management duties and responsibilities for sustainable development.	*CO 6*	*PO12*	**10**

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