U.S.N.										

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

Autonomous Institute Affiliated to VTU

June 2025 Semester End Main Examinations

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

Branch: Institutional Elective **Duration: 3 hrs.**

Course Code: 23CY7OEGCE **Max Marks: 100**

Course: Green Chemistry and Green Engineering

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 role of green technologies in sustainable development.	*CO1*	*PO2*	**7**
	b)		Explain safer routes to synthesize carbaryl to avoid the incidents such as Bhopal Gas incident.	*CO2*	*PO6*	**7**
	c)		Elaborate pollution Act 2000.	*CO1*	*PO2*	**6**
			OR			
2	a)		Explain hydrogen as a green fuel. Highlight the strategic plan of green hydrogen mission of government of India.	*CO2*	*PO6*	**7**
	b)		Describe a safer way to synthesize cyclohexanol in order to prevent accidents like the Flixiborough incident.	*CO2*	*PO6*	**7**
	c)		Explain any four principles of green chemistry.	*CO1*	*PO2*	**6**
			UNIT - II			
3	a)		Describe the function of supercritical carbon dioxide as an environmentally friendly solvent.	*CO2*	*PO6*	**7**
	b)		Discuss photocatalytic reactions. Highlight their advantages, disadvantages.	*CO1*	*PO2*	**7**
	c)		Explain the synthesis of paracetamol by ultrasound assisted reactions.	*CO2*	*PO6*	**6**
			OR			
4	a)		Discuss the principle, methodology advantages, disadvantages of ultrasound assisted reactions.	*CO2*	*PO6*	**7**
	b)		Explain the synthesis of aspirin by microwave assisted method.	*CO2*	*PO6*	**7**
	c)		Explain the role of water as a green solvent.	*CO2*	*PO6*	**6**

			UNIT - III			
	5	a)	Explain the principle and working of light emitting dioses (LED).	*CO2*	*PO6*	**7**
		b)	Discuss the technology involved in fabrication of optical fibers.	*CO1*	*PO2*	**7**
		c)	Explain liquid based solar heating & cooling systems for buildings.	*CO2*	*PO6*	**6**
			OR			
	6	a)	What are optical fibers? Discuss their classifications.	*CO2*	*PO6*	**7**
		b)	Explain vapor absorption refrigeration cycle.	*CO1*	*PO2*	**7**
		c)	Explain the principle of solar air heating systems.	*CO1*	*PO2*	**6**
			UNIT - IV			
	7	a)	Discuss the various methods of recovery of metals from electronic waste.	*CO3*	*PO7*	**7**
		b)	What is carbon sequestration. Explain the principle and various applications of carbon sequestration as green approach.	*CO3*	*PO7*	**7**
		c)	What is E-waste? Explain the various sources of e-waste.	*CO3*	*PO7*	**6**
			OR			
	8	a)	Explain the principle and procedure involved in conversion of solid waste to electricity. Mention the advantages and disadvantages of the process.	*CO2*	*PO6*	**7**
		b)	Discuss the hazards involved in biomedical waste.	*CO1*	*PO2*	**7**
		c)	Explain different e-waste management approaches.	*CO2*	*PO2*	**6**
			UNIT - V			
	9	a)	What are biodegradable polymers? List out the criteria to become a polymer biodegradable.	*CO2*	*PO6*	**7**
		b)	Explain the development of binder less board. List the advantages and disadvantages of binder less board.	*CO3*	*PO7*	**7**
		c)	Discuss degradation and durability of wood-based materials.	*CO3*	*PO7*	**6**
			OR			
	10	a)	What are wood polymer composites (WPC). Explain its developments and commercial applications.	*CO3*	*PO7*	**7**
		b)	Explain the various methods and tests to assess biodegradability of a polymer.	*CO2*	*PO6*	**7**
		c)	Discuss green building materials.	*CO3*	*PO7*	**6**

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