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: 22CH7PCCTN **Max Marks: 100**

Course: Chemical Technology

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)	With a neat process flow diagram, explain the coking of coal.	CO1	PO2	**10**
	b)	Explain with a neat flow sheet, the conventional Linde-Frankl process for producing low purity oxygen.	CO2	PO2	**10**
		OR			
2	a)	Draw the schematic sketches of the following unit operations with comments. i. Fluidized bed reactor ii. Wet scrubbing system iii. Plate and Frame Filter Press iv. Multiple Effect Evaporator and v. Bag Filter.	CO1	PO2	**05**
	b)	Explain the liquefied petroleum gas production process adopted in the industry. Draw a neat PFD and identify the mass transfer operations involved in the process.	CO2	PO2	**10**
	c)	What are the constituents of petroleum?	CO1	PO2	**05**
		UNIT - II			
3	a)	With the help of a neat process flow diagram, explain the synthesis of ammonia by Haber-Bosch process mention the major engineering problems.	CO3	PO7	**10**
	b)	Why is DCDA process advantageous over contact process for sulfuric acid production? Discuss the modern DCDA process with a flow sheet and the major engineering problems.	CO3	PO7	**10**
		OR			

	4	a)	Explain with a process flow sheet and reactions the production of nitric acid by ammonia oxidation process (Montecatini intermediate pressure process).	*CO4*	*PO10*	**10**
		b)	Mention the uses of Phosphoric acid. Discuss its production by HCL leaching method with major engineering problems.	*CO4*	*PO10*	**10**
			UNIT - III			
	5	a)	Illustrate the vegetable oil extraction with a neat PFD and the functional roles of unit operations and process.	*CO4*	*PO10*	**10**
		b)	Explain the manufacturing of soaps, fatty acids and glycerin with a neat flow diagram and reactions. What are industrial and pharmaceutical uses of glycerin?	*CO3*	*PO7*	**10**
			OR			
	6	a)	With a neat flow diagram, explain the hydrogenation of vegetable oil.	*CO3*	*PO7*	**10**
		b)	Write the material balance with by products for sugar production considering basis 1 ton sugarcane using simple block diagram.	*CO4*	*PO10*	**10**
			UNIT - IV			
	7	a)	With a neat flow sheet, explain the Butadiene Styrene rubber production process.	*CO3*	*PO7*	**10**
		b)	With the help of relevant reactions and process flow diagram, explain the Sulfate (Kraft) Pulping Process.	*CO3*	*PO7*	**10**
			OR			
	8	a)	With a neat process flow diagram and relevant reactions, elucidate the production of ethyl alcohol by fermentation process.	*CO4*	*PO2*	**10**
		b)	Explain with a neat block diagram and reaction production of Poly vinyl chloride (PVC) using suspension and emulsion polymerization.	*CO4*	*PO2*	**10**
			UNIT - V			
	9	a)	What are the constituents of paint? Classify paints based on applications.	*CO4*	*PO2*	**10**
		b)	What are bio-fertilizers? Which are the microbes are used as biofertilizers? What are their advantages.	*CO4*	*PO2*	**10**
			OR			
	10	a)	Explain with a neat process flow sheet, the production of urea from ammonia carbamate.	*CO3*	*PO7*	**10**
		b)	What are NPK fertilizers? Explain with the neat block diagram the production of NPK using Integrated Nitro-phosphate Process	*CO3*	*PO7*	**10**

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