U.S.N.										

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

Autonomous Institute Affiliated to VTU

June / July 2025 Semester End Main Examinations

Programme: B.E. **Semester: V**

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

Course Code: 23CH5PCCTN **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)	Describe the distillation of crude for the production of various chemicals.	*CO4*	*PO10*	**10**
	b)	Discuss the Linde-Frankl process for producing oxygen and nitrogen with a neat flowsheet. What is the mole percentage of oxygen and nitrogen in the air?	*CO4*	*PO10*	**10**
		OR			
2	a)	List the unit operations and processes used in chemical industries. Explain any two of each in detail in detail.	*CO1*	*PO2*	**08**
	b)	What is destructive distillation of coal and why is it carried out? Explain the process with a neat flowsheet.	*CO4*	*PO10*	**12**
		UNIT - II			
3	a)	What are the major engineering problems encountered in the manufacture of ammonia?	*CO3*	*PO7*	**05**
	b)	Draw the schematic diagram of a membrane cell to produce NaOH. What are the relative advantages and disadvantages of membrane cell?	*CO2*	*PO2*	**05**
	c)	Explain the manufacture of phosphoric acid using HCl leaching method with a PFD and chemical reactions. What is the use of adding water at the third mixer-settler in the process?	*CO4*	*PO10*	**10**
		OR			
4	a)	Discuss the manufacture of sulfuric acid with a neat flowsheet.	*CO4*	*PO10*	**10**
	b)	With a neat flowsheet, explain the manufacture of nitric acid.	*CO4*	*PO10*	**10**

			UNIT - III			
	5	a)	Explain the methods used for the removal of oil from oil seeds. What is the source of the solvents used?	*CO1*	*PO2*	**05**
		b)	What is Raney nickel? Draw the flowsheet of hydrogenation of oil and write the reaction involved.	*CO2*	*PO2*	**10**
		c)	Distinguish between soap and detergents.	*CO4*	*PO10*	**05**
			OR			
	6	a)	With a neat flowsheet, explain the manufacture of sugar from sugar cane. What are the major engineering problems encountered?	*CO4*	*PO10*	**12**
		b)	Draw a neat flowsheet for the manufacture of soaps.	*CO2*	*PO2*	**05**
		c)	How is degumming carried out in oil industries?	*CO1*	*PO2*	**03**
			UNIT - IV			
	7	a)	With a neat flow sheet, explain the manufacture of LDPE.	*CO4*	*PO10*	**08**
		b)	Differentiate between emulsion and suspension polymerization.	*CO1*	*PO2*	**04**
		c)	What are the different methods of pulp production? Discuss the difference.	*CO1*	*PO2*	**08**
			OR			
	8	a)	List and describe briefly types of polyethylene.	*CO1*	*PO2*	**04**
		b)	Draw a neat flowsheet for the production of SBR.	*CO2*	*PO2*	**06**
		c)	What is pulp? Explain the Kraft process of pulp making. Mention the function of the digestor in the process.	*CO4*	*PO10*	**10**
			UNIT - V			
	9	a)	What are the major engineering problems encountered in the production of urea?	*CO3*	*PO7*	**04**
		b)	List the constituent of paints along with their functions.	*CO1*	*PO2*	**06**
		c)	What are the two methods of titanium dioxide production? Explain one method with a flowsheet.	*CO4*	*PO10*	**10**
			OR			
	10	a)	What is limestone beneficiation? Explain with a neat flowsheet.	*CO4*	*PO10*	**10**
		b)	What are biofertilizers? List and explain briefly.	*CO1*	*PO2*	**05**
		c)	Differentiate among the different types of Portland cement.	*CO1*	*PO2*	**05**

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