Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III • EXAMINATION – WINTER • 2014

Subject Code: 2131304 **Date: 23-12-2014**

Subject Name: Chemical Engineering Processes

Time: 02.30 pm - 05.00 pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Describe the manufacturing process of Urea with the help of a flowsheet.	**07**
	(b)	Explain in detail the manufacturing process of Vinyl chloride. Discuss the sources of pollution related to the process.	**07**
Q.2	**(a)**	Explain manufacturing process of Aniline with a flowsheet. What are the hazards related to the process?	**07**
	(b)	Describe manufacture of nitric acid and engineering problem associated with the process.	**07**
		OR	
	(b)	Explain the importance of pollution control in chemical manufacturing process.	**07**
Q.3	**(a)**	Describe the manufacturing process of Ethanol from ethylene by sulphonation. Discuss the uses of ethanol and pollution aspects related to the process.	**08**
	(b)	Discuss the health and safety related hazards in Hydrogen cyanide production.	**06**
		OR	
Q.3	**(a)**	Write short note on: (i) uses of monochloro acetic acid (ii) biuret formation problem in urea production.	**08**
	(b)	Write short note on hydrogenation of oils.	**06**
Q.4	**(a)**	Write manufacturing process of Ethylene Chlorohydrin. List the related health and safety aspects.	**08**
	(b)	Write short note on sulfur production.	**06**
		OR	
Q.4	**(a)**	Explain the manufacturing process of Furfural by hydrolysis process. Highlight the pollution aspects.	**07**
	(b)	With a flowsheet describe manufacture of Ethyl acetate. List the major engineering problems.	**07**
Q.5	**(a)**	Describe the manufacturing process of Acetic acid. List the major engineering problems.	**07**
	(b)	Explain the manufacturing process of Cellulose acetate with a flowsheet.	**07**
		OR	
Q.5	**(a)**	Describe the manufacturing process of Phenol. Highlight the pollution problems.	**07**
	(b)	Explain the manufacturing process of methanol with a neat flowsheet.	**07**

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