Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV(New) • EXAMINATION – WINTER 2016

Subject Code:2143505 **Date:23/11/2016**

Subject Name:Chemical Process Technology

Time:02:30 PM to 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		**Answer the following (1 mark each)**	**14**
	1	What is biuret?	
	2	What is a function of multiple effect evaporators?	
	3	What is alcohol concentration in beer?	
	4	Draw the structure of Terephthalic acid.	
	5	What is the procedure for regeneration of ion exchange resins?	
	6	What are the applications of vinyl chloride?	
	7	Write down different raw material used for manufacturing of Ethylene.	
	8	What is a synthesis gas?	
	9	Which catalyst is used during manufacturing of ammonia?	
	10	Which gas is present in household Liquefied Petroleum Gas (LPG)?	
	11	What is a function of H_2SO_4 in HNO_3 manufacturing?	
	12	Write down overall reaction involved in manufacturing of soda ash using Solvay process.	
	13	Octane number of a fuel is 93. What does it mean?	
	14	Why hops are required in beer manufacturing?	
Q.2	**(a)**	Discuss manufacturing of wine.	**03**
	(b)	What is fermentation? Discuss types of fermentation with examples.	**04**
	(c)	Elaborate the fermentation process for manufacturing of citric acid?	**07**

OR

	(c)	Discuss manufacturing of beer using fermentation with the help of neat flow diagram.	**07**
Q.3	**(a)**	Give the composition of crude oil.	**03**
	(b)	Note down different applications of synthesis gas.	**04**
	(c)	What are the crude oil characteristics? Discuss any three in detail.	**07**

OR

Q.3	**(a)**	Draw the neat flow diagram for manufacturing of methanol from synthesis gas.	**03**
	(b)	Discuss reactions involved in manufacturing of synthesis gas from natural gas.	**04**
	(c)	Discuss manufacturing of ethylene with the help of neat flow diagram.	**07**

Q.4	**(a)**	Define the following terms: (1) Distillation (2) Absorption (3) Desulphurization	**03**
	(b)	Discuss lime soda process used for water conditioning.	**04**
	(c)	Discuss manufacturing of nitrobenzene with the help of neat flow diagram.	**07**

OR

Q.4	**(a)**	Discuss methods used for manufacturing of hydrogen.	**03**
	(b)	Discuss manufacturing of caustic soda with help of mercury cell.	**04**
	(c)	Discuss manufacturing of vinyl chloride with the help of neat flow diagram.	**07**
Q.5	**(a)**	Write down applications of soda ash.	**03**
	(b)	Describe the wet process for phosphoric acid manufacturing.	**04**
	(c)	What is oleum? Describe in detail the contact process for manufacturing sulfuric acid.	**07**

OR

Q.5	**(a)**	Write down applications of ammonia.	**03**
	(b)	Discuss major engineering problems associated with manufacturing of sulfuric acid.	**04**
	(c)	Discuss manufacturing of urea with the help of neat flow diagram.	**07**

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