Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII • EXAMINATION – SUMMER • 2014

Subject Code: 170504 **Date: 29-05-0214**

Subject Name: New Separation Techniques

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.**
4. **All notations have conventional meaning.**

Q.1	**(a)**	Discuss the properties of supercritical fluids and the advantages and disadvantages of a supercritical fluid over conventional liquid solvent for extraction process.	**07**
	(b)	Explain working of Short Path Distillation unit.	**07**
Q.2	**(a)**	Explain Concept and working of Pressure Swing Distillation.	**07**
	(b)	Describe reactive and catalytic distillation in detail.	**07**
		OR	
	(b)	Write a note on reverse osmosis.	**07**
Q.3	**(a)**	With the help of a detailed flow sheet explain the ROSE process for deasphalting by propane using supercritical extraction. Also list the advantages.	**07**
	(b)	Describe various techniques of melt crystallization.	**07**
		OR	
Q.3	**(a)**	Discuss technique of Perevoparation with its industrial applications.	**07**
	(b)	Describe the manufacturing process of ETBE by reactive distillation process and compare with the conventional process.	**07**
Q.4	**(a)**	Write short note on Ultra Filtration.	**07**
	(b)	Write in detail about Osmotic distillation and its various industrial applications.	**07**
		OR	
Q.4	**(a)**	Write with neat sketch about different Modules used in membrane Separation	**07**
	(b)	Discuss the concept and working of membrane reactors and their applications.	**07**
Q.5	**(a)**	Explain: Manufacturing of monoglyceride and dimeric Fatty Acids.	**07**
	(b)	Discuss Advantage & Disadvantages of pressure swing adsorption over azeotropic and Extractive Distillation	**07**
		OR	
Q.5	**(a)**	Describe commercial applications of reactive and catalytic distillation.	**07**
	(b)	Discuss in detail various engineering problems associated with usage of membranes.	**07**

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