Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII • EXAMINATION – WINTER 2013

Subject Code: 170504 **Date: 28-11-2013**

Subject Name: New Separation Techniques

Time: 10:30 TO 01:00 **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)**	Write in detail – Principle and Working of Ultrafiltration with five industrial applications.	**07**
	(b)	What is Crystallization? Discuss Melt Crystallization in detail.	**07**
Q.2	**(a)**	What is the principle of Pressure Swing Adsorption Technique? Write in detail about Four Column Pressure Swing Adsorption Technique.	**07**
	(b)	Discuss Short Path Distillation technique and write five industrial applications	**07**
		OR	
	(b)	Compare Short Path Distillation with Molecular distillation	**07**
Q.3	**(a)**	Write in detail about Importance of membrane separation in Chemical and Allied industries.	**07**
	(b)	Discuss briefly technique of Perevoparation with its industrial applications.	**07**
		OR	
Q.3	**(a)**	Disuss ROSE process in detail	**07**
	(b)	Discuss Reactive Distillation with its industrial applications.	**07**
Q.4	**(a)**	What is supercritical solvents? Discuss Supercritical extraction in detail	**07**
	(b)	Explain principles of Reverse Osmosis with its applications.	**07**
		OR	
Q.4	**(a)**	Write a short note on importance of BALE and KATMAX packings.	**07**
	(b)	Discuss advantages and disadvantages of Supercritical extraction over liquid-liquid extraction.	**07**
Q.5	**(a)**	Write with neat sketch about different packing Modules used in membrane separation	**07**
	(b)	Write working principle and applications of Osmotic Distillation.	**07**
		OR	
Q.5	**(a)**	Discuss principle of Pressure Swing Distillation	**07**
	(b)	Write in brief about Membrane Reactor with its industrial applications.	**07**

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