Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – II • EXAMINATION – SUMMER • 2013

Subject code: 1721608 **Date: 07-06-2013**

Subject Name: Separation Techniques

Time: 10.30 am – 01.00 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)**	Explain benefits of Membrane Separation Techniques with one membrane separation technique in detail along with its principle, five industrial applications and advantage-disadvantage.	**14**
Q.2	**(a)**	Explain Spiral wound membrane module with its advantages.	**07**
	(b)	Discuss Melt Crystallization with its industrial applications.	**07**
		OR	
	(b)	What is supercritical solvent? List advantages of supercritical solvent with relevant examples.	**07**
Q.3	**(a)**	What is the working principal of Perevoparation? Discuss its application.	**07**
	(b)	Write in detail - principle of membrane distillation and its working.	**07**
		OR	
Q.3	**(a)**	Compare ï Melt Crystallization Vs. Distillation.	**07**
	(b)	Discuss working of Reverse Osmosis and its applications.	**07**
Q.4	**(a)**	What is the principle of Pressure Swing Adsorption (PSA)? Explain four column PSA technique.	**07**
	(b)	Discuss applications of Reactive & Catalytic distillation in detail.	**07**
		OR	
Q.4	**(a)**	Explain Six column Pressure Swing Adsoption technique.	**07**
	(b)	Discuss Pressure Swing Distillation with its industrial applications.	**07**
Q.5	**(a)**	Briefly discuss ï Design of Short Path Distillation Unit.	**07**
	(b)	Write about concept and working of Membrane Reactor along with membrane reactor module used in chemical industry.	**07**
		OR	
Q.5	**(a)**	Discuss membrane distillation technique.	**07**
	(b)	Compare Reverse Osmosis with Ultrafiltration.	**07**

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