Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER – VI (NEW).EXAMINATION – WINTER 2016

Subject Code: 2160507 **Date: 26/10/2016**

Subject Name: Advance Separation Techniques

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	**(a)**	Discuss the Advance separation techniques applied in chemical industry and their benefits with example	07
	(b)	Define SCE? Explain flow sheet of batch super critical extraction?	07
Q.2	**(a)**	Explain flow sheet of Decaffeination of coffee?	07
	(b)	Explain working of Short Path Distillation unit.	07
		OR	
	(b)	Explain with neat flow sheet: ROSE Process.	07
Q.3	**(a)**	Discuss principal of pressure swing Adsorption with one industrial application in details.	07
	(b)	Explain working of pressure swing distillation? What is difference between Melt crystallization and distillation?	07
		OR	
Q.3	**(a)**	Discuss about the different techniques used for Melt crystallization?	07
	(b)	Write in detail about four step pressure swing adsorption process.	07
Q.4	**(a)**	Write with neat sketch about different Modules used in membrane separation	07
	(b)	Discuss the concept and working of membrane reactor and their application	07
		OR	
Q.4	**(a)**	Discuss technique of per vaporization with its industrial application	07
	(b)	Discuss in detail various engineering problems associated with usage of membranes.	07
Q.5	**(a)**	Discuss working principle of Reverse Osmosis and its industrial applications	07
	(b)	Write working principle and applications of Osmotic Distillation.	07
		OR	
Q.5	**(a)**	Write in details about reactive and catalytic distillation and discuss BALE and KATMAX packing with neat sketch.	07
	(b)	Explain Ultra filtration with its industrial applications.	07

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