

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 Pervaporation 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**
