

**GUJARAT TECHNOLOGICAL UNIVERSITY****M.E -III<sup>rd</sup> SEMESTER-EXAMINATION – MAY- 2012****Subject code: 731601****Date: 08/05/2012****Subject Name: Process Intensification****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) Give a brief History of Process Intensification (PI) **07**  
(b) Discuss merits and demerits of PI. **07**

**Q.2** (a) Discuss how PI is useful for pharmaceutical industry. **07**  
(b) Describe heat transfer application of chemical reactions. **07**

**OR**

(b) Discuss the concept of micro heat exchangers. **07**

**Q.3** Give an over view of PI in chemical Industry. **14**

**OR**

**Q.3** (a) Describe spinning disc reactor. **07**  
(b) Describe membrane reactors. **07**

**Q.4** Discuss PI for mass transfer operations. **14**

**OR**

**Q.4** (a) Give applications of PI in petrochemical industries. **07**  
(b) Give applications of PI in heat transfer Operations. **07**

**Q.5** (a) Discuss the mechanism involved in fluid flow operations. **07**  
(b) Discuss reactive extraction. **07**

**OR**

**Q.5** (a) Give details of PI for separation processes. **07**  
(b) Discuss PI for distillation. **07**

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