

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

## GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – III • EXAMINATION – WINTER • 2014

**Subject code: 733003**

**Date: 27-11-2014**

**Subject Name: Introduction to Polymer Science and Technology**

**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.

- Q-1 (a)** Explain briefly about the Polydispersity and Molecular weight distributions in polymers. **07**
- (b)** Name the various measuring techniques of molecular weight of polymer and explain any one in brief. **07**
- Q-2 (a)** Briefly describe the classification of polymer with examples. **07**
- (b)** Explain in brief following terms: **07**
- i) Tacticity
  - ii) Copolymers
- OR**
- (b)** Explain in brief following terms: **07**
- i) Elastomers
  - ii) Fibers
- Q-3 (a)** Explain kinetics of step polymerization process. **07**
- (b)** Explain the mechanism and kinetics of cationic polymerization. **07**
- OR**
- Q-3 (a)** Discuss various types of polymers based on micro structures. **07**
- (b)** Discuss mechanism of co-ordination polymerization. **07**
- Q-4 (a)** Explain emulsion polymerization technique in brief. **07**
- (b)** Explain briefly thermal degradation of polymer. **07**
- OR**
- Q-4 (a)** Explain the solubility parameter of polymer solution. **07**
- (b)** Explain about the properties involving large deformations. **07**
- Q-5 (a)** Explain polymerization process of Poly Butadiene Rubber. **07**
- (b)** Explain injection moulding process with diagram. **07**
- OR**
- Q-5 (a)** Explain briefly mechanical degradation of polymer. **07**
- (b)** Explain extruder with neat diagram. **07**

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