

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

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

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**ME – SEMESTER IV (NEW) – • EXAMINATION – SUMMER 2016**

**Subject Code: 2743002**

**Date: 04/05/2016**

**Subject Name: Polymer Science and Technology**

**Time: 10:30 am to 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) State and explain various methods of degradation of polymers. **07**  
(b) What are important physical properties of polymer? Explain few of them. **07**
- Q.2** (a) Explain classification of polymer with appropriate examples. **07**  
(b) State various techniques of polymerization and explain any one in detail. **07**
- OR**
- (b) Differentiate between addition and condensation polymerization with example. **07**
- Q.3** Describe in detail various reaction engineering aspects of polymerization with special reference to reactor design and molecular weight of polymer. **14**
- OR**
- Q.3** (a) What is rheology of polymer system? Explain in detail. **07**  
(b) Explain polymerization reactor for industrial polymerization of Butadiene rubber. **07**
- Q.4** With special reference to mechanism and kinetics, explain chain growth polymerization phenomena in detail. **14**
- OR**
- Q.4** With special reference to kinetics and co-polymerization fundamentals, explain step growth polymerization in detail. **14**
- Q.5** (a) Explain various measuring techniques for molecular weight of polymer. **07**  
(b) Write a short note on polymer structure. **07**
- OR**
- Q.5** (a) State various unit operations applied in different types of polymer industries. **07**  
(b) Explain essential features of process used for production of Polystyrene. **07**

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