

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-III (NEW) • EXAMINATION – SUMMER 2015

Subject Code:2133602**Date:27/05/2015****Subject Name: Polymer Chemistry (Department Elective-I)****Time:02.30pm-05.00pm****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) Draw the chemical structure of following: Butadiene, vinyl chloride, styrene, acrylic acid, methyl methacrylate, caprolactum, ethylene glycol **07**
(b) Write short note on: Polymerization, solubility, functionality of monomers **07**
- Q.2** (a) Write comparisons of solution and bulk polymerization. **07**
(b) Write detailed note on crystallinity and glass transition temperature. **07**
- OR**
- (b) Write details of emulsion and suspension polymerization. **07**
- Q.3** (a) Compare and contrast between addition and condensation polymerization. **07**
(b) Write short notes on ionic and copolymerization with examples. **07**
- OR**
- Q.3** (a) Elaborate LCST and UCST with diagrams. **07**
(b) Explain the composition of crude oil and also discuss the functions of components. **07**
- Q.4** (a) Explain in detail distillation of crude oil with elaboration of its fractions. **07**
(b) Explain synthesis of caprolatum and butadiene. **07**
- OR**
- Q.4** (a) What are the basic engineering problems associated with bulk and emulsion polymerization techniques. **07**
(b) Explain in detail the Gel Permeation Chromatography(GPC) for determining the molecular weight of polymer. **07**
- Q.5** (a) Write short note on: poly dispersity and molecular weight distribution. **07**
(b) Derive an expression for the rates of reactions and degree of polymerisation for cationic polymerisation. **07**
- OR**
- Q.5** (a) Write note on any two: tacticity, degree of polymerization, characteristics of copolymerization. **07**
(b) Elaborate various uses of polymers. **07**
