

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– III EXAMINATION – SUMMER 2015****Subject Code: 132804****Date: 29/05/2015****Subject Name: Polymer Chemistry****Time: 02.30pm-05.00pm****Total Marks: 70****Instructions:**

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Define polymer. Explain addition polymerization mechanism in detail with example. **07**
- (b) How many polymerization techniques are there? Explain Emulsion polymerization to prepare a polymer? Explain with example. **07**
- Q.2** (a) What is polyester? Give structure, preparation, properties, uses and copolymer of it. **07**
- (b) What is viscosity? Explain relative, specific, reduced and intrinsic viscosity with the viscosity average molecular weight. **07**
- OR**
- (b) Discuss DSC and DTA technique to measure molecular weight of polymer sample. **07**
- Q.3** (a) Explain number average and weight average molecular weight in detail and derive related equations. **07**
- (b) Discuss free radical polymerization with two no. of examples. **07**
- OR**
- Q.3** (a) Describe thermosetting polymers. Write preparation, properties and uses of Phenol formaldehyde crosslink polymer in detail. **07**
- (b) Explain I.R. spectroscopy technique for testing of polymers. **07**
- Q.4** (a) Discuss addition & Substitution reaction with examples. **07**
- (b) What distinguish between polyamides and polyamines? Explain polyamides and related polymers. **07**
- OR**
- Q.4** (a) What type of precaution we will take to minimize pollution of plastics all over the world? **07**
- (b) What is scattering of light ? Discuss Light scattering technique with equations. **07**
- Q.5** (a) Explain Aminolysis and hydrogenation reactions with examples. **07**
- (b) Discuss Extrusion molding to prepare types of articles. **07**
- OR**
- Q.5** (a) Give note on stereo-regular polymers with suitable examples. **07**
- (b) What is rubber? Discuss vulcanization process in detail. **07**
