

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-III • EXAMINATION – WINTER 2013****Subject Code: 133602****Date: 26-11-2013****Subject Name: Polymer Chemistry for Chemical 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)** Objective type questions **07**
Fill in the blanks
1. Macromolecules concept was given by _____
 2. Full form of Teflon is _____
 3. Anionic Polymerization is also known as _____
 4. Kevlar was invented by _____
 5. Monomer for PVC is _____
 6. DMT is a raw material for _____
 7. Methyl Methacrylate is monomer for _____
- (b)** Write Short Note on any two of the following **07**
1. Herman Staudinger
 2. P.J.Flory.
 3. Karl Ziegler
 4. Giulio Natta
 5. Stephanie Kwolek
- Q.2 (a)** Write detail note on the mechanism of free radical polymerization. Explain degree of polymerization. **07**
- (b)** Write detail note on the kinetic of free radical polymerization. **07**
- OR**
- (b)** Write detail note on the kinetic of cationic polymerization. **07**
- Q.3 (a)** Write notes on the production of any two monomers **07**
- a) Styrene,
 - b) Butadiene,
 - c) DMT
 - d) TDI
 - e) MDI
- (b)** Write note on the Number average and Weight average molecular weights & polydispersity index. **07**
- OR**
- Q.3 (a)** What is glass transition temperature of polymers? Explain various factors affecting it. **07**
- (b)** Write about Viscometry method for molecular weight determination of polymers. **07**
- Q.4 (a)** What are LCST and UCST? Explain with the help of phase diagrams. **07**
- (b)** Write in detail about historical developments in polymers and various end use sectors of polymers. **07**
- OR**
- Q.4 (a)** Explain molecular weight determination methods for polymers. Write in detail about GPC method. **07**

- (b) What is living polymerization? Write in detail about its kinetic. 07
- Q.5** (a) Write a detail note on types of refinery and various important processes involved in refineries. 07
- (b) Explain in detail about bulk, suspension, solution and emulsion polymerization techniques of polymerization? Write their advantages and disadvantages. 07
- OR**
- Q.5** (a) Explain in detail about polymers, classification of polymers. 07
- (b) Give examples of addition, condensation, natural, synthetic and semi synthetic polymers. 07
