

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- VIth SEMESTER–EXAMINATION – MAY- 2012****Subject code: 162302****Date: 11/05/2012****Subject Name: Plastic Structure, Property and Relationship****Time: 10:30 am – 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) What is Glass transition temperature (T_g)? List various factors affecting T_g and explain in detail. **07**
(b) Explain classification of polymer on the basis of their tacticity. **07**
- Q.2** (a) Define : (1) Homochain polymer (2) Hetero chain polymer **07**
(3) Homopolymer (4) Copolymer
(b) Explain how the molecular weight affects on polymer properties. **07**
OR
(b) Short note : Factors affecting Crystallinity. **07**
- Q.3** (a) Explain effect of hydrogen on polymer properties. **07**
(b) Explain how the structure of polymer affects its chemical properties. **07**
OR
- Q.3** (a) Explain the properties of Unsaturated polyester resins with reference to their molecular structure. **07**
(b) Give some fluorine containing polymers with their molecular structures. **07**
What are the specific characteristics related to their molecular structures?
- Q.4** (a) Explain the effect of temperature upon modulus of linear amorphous polymer. **07**
(b) Discuss how electrical properties of polymer are related to their structure. **07**
OR
- Q.4** (a) (i) Explain: polymer solubility. **04**
(ii) Determination of polymer solubility parameter. **03**
(b) How are the properties of Polyacrylates related to their structures? Discuss. **07**
Also mention the important applications of PMMA.
- Q.5** (a) How the presence of Oxygen affects polymer properties? Explain. **07**
(b) Discuss effect of Crystallinity on polymer properties. **07**
OR
- Q.5** (a) Effect of additives on mechanical properties of polymers. **07**
(b) Explain effect of n-alkyl side chain length on molecular flexibility. **07**
