

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI • EXAMINATION – SUMMER 2013****Subject Code: 162302****Date: 27-05-2013****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)? **07**
Describe factors affecting T_g.

(b) Explain how the structure of a polymer affects its mechanical properties. **07**

Q.2 (a) What is Hydrogen bonding? Explain effect of it on properties of polymers. **07**

(b) Discuss the relation between the structure and the properties of polyacetal resins. Mention the important properties and applications of polyacetals. **07**

OR

(b) Explain effect of oxygen on properties of Polymer which contain silicone in chain. **07**

Q.3 (a) Explain about the factors determining crystallinity. **07**

(b) Explain about effect of Plasticizer and Heat stabilizers on Polymers. **07**

OR

Q.3 (a) What is conformation and configuration? **07**

Explain classification of Polymer on basis of Tacticity.

(b) Explain how the structure of a polymer affects its electrical properties. **07**

Q.4 (a) Discuss: How are the properties of polyacrylates related to their structure? **07**
List the important application of PMMA.

(b) Name some fluorine containing polymers and give their molecular structures. What are the specific characteristics related to their molecular structures? **07**

OR

Q.4 (a) Explain, how the structures of nylons are related to their properties. **07**

Q.4 (b) Explain the properties of unsaturated polyester resins with reference to their molecular structures. **07**

Q.5 (a) Explain effect of molecular orientation on properties of Polymer. **07**

(b) S.N. Polymer solubility **07**

OR

Q.5 (a) Explain how the structure of a polymer affects its chemical properties. **07**

(b) Define: Haze, Gloss, Reflectance, Dissipation factor, Dielectric strength, Volume resistivity and Surface resistivity **07**
