

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI • EXAMINATION – SUMMER • 2014****Subject Code: 162302****Date: 21-05-2014****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) Discuss about C-H bond and its effect on properties of polymer. **07**
(b) Explain about Linearity, branching and cross-linking of polymer and its effect on the properties of polymer? **07**
- Q.2** (a) Discuss about structure and properties of Polystyrene. **07**
(b) Compare: Crystalline Polymer with Amorphous Polymer. **07**
- OR**
- (b) Discuss effect of Fluorine (F) and Silicone (S) on polymer properties. **07**
- Q.3** (a) Discuss about structure and properties of Polyester. **07**
(b) Explain effect of molecular weight on thermal properties of Polymer. **07**
- OR**
- Q.3** (a) Discuss effect of stabilizers on the properties of Polymer. **07**
(b) Write chemical structure of Polymethylmethacrylate (PMMA). Why PMMA is transparent? Explain **07**
- Q.4** (a) Explain effect of plasticizer on Electrical Properties like: (1) Resistance (2) Dielectric Properties **07**
(b) What is conformation and configuration? **07**
Explain classification of Polymer on basis of Tacticity.
- OR**
- Q.4** (a) What is Glass Transition Temperature (T_g)? **07**
Describe factors affecting T_g.
(b) Write the chemical structure of Nylon 6 and Nylon 66. Compare the properties of Nylon 6 and Nylon 66 on the basis of their chemical structural difference. **07**
- Q.5** (a) Explain effect of molecular orientation on properties of Polymer. **07**
(b) Explain effect of n-alkyl side chain length on molecular flexibility. **07**
- OR**
- Q.5** (a) Define : (1) Hydrogen Bond (2) Covalent Bond (3) Homopolymer (4) Copolymer (5) Polar bond (6) Ionic Bond (7) coefficient of thermal expansion **07**
(b) Explain how the structure of a polymer affects its chemical properties. **07**
