Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI • EXAMINATION – WINTER • 2014

Subject Code: 162302 Date: 28-11-2014

Subject Name: Plastic Structure Property and Relationship

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)**	Compare: Linear, branched, cross linked and network Polymers.	**07**
	(b)	Explain effect of plasticizer on the properties of polymer.	**07**
Q.2	**(a)**	What is Glass Transition Temperature (Tg)?Explain about factors affecting on it in detail.	**07**
	(b)	Explain about stress-strain curve for plastics material and analyze the properties of plastics from it.	**07**
		OR	
	(b)	Explain effect of molecular weight on the properties of polymer.	**07**
Q.3	**(a)**	Explain properties of Nylons with reference to their molecular structure.	**07**
	(b)	Compare: Crystalline Polymer with Amorphous Polymer.	**07**
		OR	
Q.3	**(a)**	List the chlorine contain plastics material with molecular structure. Explain specific properties related to molecular structure.	**07**
	(b)	Discuss effect of hydrogen on Polymer properties.	**07**
Q.4	**(a)**	(1) PE has a Tg of -20^0C.Why is it that it appears to be solid at room temperature? (2) What make PVC self extinguishing?	**07**
	(b)	Explain effect of Polar group on the electrical properties of polymer.	**07**
		OR	
Q.4	**(a)**	Explain classification of polymer on basis of Tacticity.	**07**
	(b)	Define: Dielectric constant, Power factor, Haze, Gloss, Dielectric strength, Dipole moment, Creep	**07**
Q.5	**(a)**	Discuss the relation between structure and properties of Polyacetal. Mention the important properties and application of Polyacetal.	**07**
	(b)	Explain effect of molecular orientation on the properties of polymer.	**07**
		OR	
Q.5	**(a)**	Compare: Homopolymer with Copolymer	**07**
	(b)	How does bond strength affect thermal stability in a polymeric material? Explain with example.	**07**

****