Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-V • EXAMINATION – WINTER • 2014

	Su Su	bject Code: 152302 Date: 28-11-2014 bject Name: Physics of Plastics	
	Ti Ins	 me: 10.30 am - 01.00 pm Total Marks: 0 tructions: Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks. 	
Q.1	(a)	Difference between dissolution of low molecular weight compounds and polymers in a solvent. Discuss in detail	07
	(b)	What is intrinsic viscosity? Discuss Mark Houwink equation and its significance	07
Q.2	(a) (b)	Discuss Boltzmann's Superposition Principle. What are the factors affecting Tg? Discuss	07 07
	(b)	List various mechanical models of visco-elastic fluids. And explain Hooke's Model in detail.	07
Q.3	(a) (b)	Discuss structural and stereo isomerism? Explain with examples What is Avogadro's number? If a PE molecule has 3000 nos.of monomers, each with a molar mass of 28 g/mol, calculate the weight of each molecule? OR	07 07
Q.3	(a) (b)	Give classification of non-Newtonian fluids and explain in detail with example Define :[any seven] Crystallites ; Spherulites ; Rayleigh ratio ; Mesogens'; Polymer fractionation ; Viscoelasticity; Entropy; polymer Melts; Polymer solutions; Nematic phase;	07 07
Q.4	(a) (b)	Differentiate between Amorphous v/s. Crystalline polymers. What is rotational viscometer? Explain Brookfield viscometer	07 07
Q.4	(a) (b)	Discuss Flory Huggins Lattice Theory Draw molecular architectures for linear, branched, crosslinked and dendritic conformations.	07 07
Q.5	(a) (b)	Discuss the Process of Polymer Crystallization Discuss measurement of Mn by osmotic pressure	07 07
Q.5	(a) (b)	Short Note on Theta Temperature and Radius of Gyration Discuss Voigt Model.	07 07
