Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V (OLD) - EXAMINATION – SUMMER 2017

Subject Code: 152302 **Date: 27/04/2017**

Subject Name: Physics Of Plastics

Time: 02:30 PM to 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)**	Discuss In Detail, The Gel Permeation Chromatography	**07**
	(b)	Discuss Theta temperature. What is its significance?	**07**
Q.2	**(a)**	Discuss the process of polymer dissolution in detail	**07**
	(b)	Discuss Maxwell's model	**07**
		OR	
	(b)	Draw Molecular Architectures for Linear, Branched, Crosslinked and Dendritic conformations	**07**
Q.3	**(a)**	Discuss In Detail , The Flory Huggins Theory	**07**
	(b)	Discuss Boltzmann's superposition Principle	**07**
		OR	
Q.3	**(a)**	Explain Mark Houwink Equation and its significance	**07**
	(b)	How will you correlate intrinsic viscosity with Molecular weight	**07**
Q.4	**(a)**	What are the factors affecting Tg? Discuss	**07**
	(b)	Define [any seven] : Crystallites ;Spherulites ; Rayleigh ratio ;Mesogens'; Polymer fractionation ; Viscoelasticity; Entropy; polymer Melts; Polymer solutions; Nematic phase; Intrinsic viscosity	**07**
		OR	
Q.4	**(a)**	What is Gaussian Distribution explain in detail	**07**
	(b)	Write a note on liquid lattice	**07**
Q.5	**(a)**	Derive WLF equation	**07**
	(b)	1. Polymer configuration v/s. polymer conformation. 2. Amorphous v/s. Crystalline polymers	**07**
		OR	
Q.5	**(a)**	Explain the concept of Doolittle theory?	**07**
	(b)	Give classification of non-Newtonian fluids and explain in detail with Example.	**07**

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