Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III (OLD) EXAMINATION – WINTER 2017

Subject Code:132301 **Date:17/11/2017**

Subject Name: Introduction to Plastic Material Science

Time: 10:30 AM to 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 How polymers and low molecular weight compounds are differing from each other?	**07**
	(b)	List various steps of free radical polymerisation and explain each with suitable example.	**07**
Q.2	**(a)**	Define polymers. Give detail classification of polymers with suitable examples.	**07**
	(b)	What are chain and step polymerization? Give difference between them.	**07**
		OR	
	(b)	Give difference between thermoplastic and thermosetting plastics.	**07**
Q.3	**(a)**	Explain Polydispersity & Molecular weight distribution in polymers.	**07**
	(b)	What is Glass transition temperature? Discuss various factors affecting Tg.	**07**
		OR	
Q.3	**(a)**	Explain number average and weight average molecular weight in polymers.	**07**
	(b)	Explain bulk polymerization technique along with advantages, disadvantages and applications.	**07**
Q.4	**(a)**	Explain optical isomerism by suitable examples.	**07**
	(b)	Discuss various factors affecting crystallisability.	**07**
		OR	
Q.4	**(a)**	What do you mean by Polydispersity? Explain Polydispersity & Molecular weight distribution in polymers.	**07**
	(b)	Answer the following: i) Write a note on : Tacticity ii) Calculate the contour length and the extended chain length of PE Mol. Given: - n =6000 , Bond angle-109°28' ,Segment length -1.54 Å.	**07**
Q.5	**(a)**	Explain Emulsion polymerization in detail.	**07**
	(b)	Define: Co-polymer, Initiator, Cross-linked polymer, Graft copolymer, Degree of polymerisation, Inhibitor, Block copolymer	**07**
		OR	
Q.5	**(a)**	Explain solution polymerization technique.	**07**
	(b)	Give difference between suspension and emulsion polymerization.	**07**

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