Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III EXAMINATION – SUMMER 2016

Subject Code:132301 Date:09/06/2016

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)**	Give classification of Polymers giving suitable examples.	**07**
	(b)	Explain Free radical polymerization in detail.	**07**
Q.2	**(a)**	Define Thermoplastics and Thermoset. Give any five examples of thermoplastic and thermoset with chemical formula.	**07**
	(b)	Explain in brief -Linear, Brached and Crossliked polymers.	**07**
		OR	
	(b)	Explain about Initiator and Inhibitor in detail.	**07**
Q.3	**(a)**	Explain about amorphous & crystalline polymers.	**07**
	(b)	What is Glass transition temperature? Explain factors influencing the Glass transition temperature.	**07**
		OR	
Q.3	**(a)**	Explain about Number average and weight average molecular weight in detail.	**07**
	(b)	Explain Polydispersity & Molecular weight distribution in polymers.	**07**
Q.4	**(a)**	Explain about Addition Polymerization and Condensation Polymerization with suitable example.	**07**
	(b)	Define: Resin, plastic, inhibitor, chain transfer agent, contour length, Ionic polymerization.	**07**
		OR	
Q.4	**(a)**	What do you mean by isomerism in polymers? Write down with examples about the stereoisomerism and geometrical isomerism of polymers.	**07**
	(b)	Explain Ziegler- Natta Polymerization in detail.	**07**
Q.5	**(a)**	Explain about Bulk polymerization .List advantages and disadvantages of it.	**07**
	(b)	Which polymerization technique forms CMC? Explain in detail with diagram.	**07**
		OR	
Q.5	**(a)**	Give the relationship between the (i) Tg and molecular weight (ii) Tg and melting point of polymers.	**07**
	(b)	Explain the manufacture of PMMA by suspension polymerization technique.	**07**

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