Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– III (New) EXAMINATION – WINTER 2019

Subject Code: 2132301 **Date: 28/11/2019**

Subject Name: Introduction to Plastic Material Science

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.**

			MARKS
Q.1	**(a)**	What are Functionality of Monomer and Degree of Polymerization?	**03**
	(b)	Explain Types of Polymer according to their Origin and Polymerization process.	**04**
	(c)	Differentiate between Thermoplastic and Thermosetting Polymer.	**07**
Q.2	**(a)**	Give details on: Inhibition and Retardation for Polymer	**03**
	(b)	Give the Functionality of following Monomer, Glycerol, Ethylene Glycol, Adipic Acid , Hexamethylene Diamine	**04**
	(c)	Give Full name of LLDPE. Explain Addition Polymerization with mechanism.	**07**
		OR	
	(c)	"Thermoplastic polymer can be recycled" justified this sentence with example.	**07**
Q.3	**(a)**	Give the structure of repeating unit of following polymers: a) Butyl Rubber b) PET c) Nylon 66.	**03**
	(b)	What is Glass Transition Temperature (Tg)? Give Tg of PVC and LDPE.	**04**
	(c)	Describe Engineering and Commodity Plastics. Give their examples.	**07**
		OR	
Q.3	**(a)**	Explain Suspension Polymerization Technique.	**03**
	(b)	What is Tacticity in polymers? Explain briefly.	**04**
	(c)	How Crystallinity affect properties of polymer?	**07**
Q.4	**(a)**	Explain Homochain and Heterochain polymers.	**03**
	(b)	What is Polydispersity? How it effect polymer's properties?	**04**
	(c)	What is Configuration and Confirmation? Give their examples.	**07**
		OR	
Q.4	**(a)**	What is the practical significance of polymer molecular weight?	**03**
	(b)	Explain the bulk polymerization technique. Give its disadvantages.	**04**
	(c)	Explain free radical polymerization.	**07**
Q.5	**(a)**	What is the importance of Tg and its relation to HDT	**03**
	(b)	What are Organic & Inorganic polymers? Explain giving examples.	**04**
	(c)	What are Spherulites. Explain them briefly.	**07**
		OR	
Q.5	**(a)**	Enlist the instrument used to know Crystallinity in polymers. Give any two examples of amorphous and crystalline polymer.	**03**
	(b)	Explain Hydrogenation and Addition Reactions of Polymers.	**04**
	(c)	What is Vulcanization of Rubber? Give its benefit.	**07**

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