Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI (NEW) EXAMINATION – SUMMER 2024

Subject Code:3160511 Date:22-05-2024

Subject Name:Polymer Science and Technology

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.**
4. **Simple and non-programmable scientific calculators are allowed.**

			Marks
Q.1	**(a)**	Explain monomer and it's functionality.	**03**
	(b)	Describe conformation and configuration of polymer.	**04**
	(c)	Discuss classification of polymer in detail.	**07**
Q.2	**(a)**	Explain polymer dispersity and molecular weight distribution..	**03**
	(b)	Explain the Concept of Number average molecular weight, weight average molecular weight, viscosity average molecular weight and Z average molecular weight,	**04**
	(c)	Explain effect of molecular weight on polymer and their measurement techniques.	**07**
		OR	
	(c)	Compare bulk, solution, and emulsion and suspension polymerization.	**07**
Q.3	**(a)**	Explain calendaring in polymer industry.	**03**
	(b)	Explain thermoforming and rubber processing in two-roll mill.	**04**
	(c)	Explain the methods of degradation of polymers such as mechanical, thermal, photo, oxidative and bio degradation.	**07**
		OR	
Q.3	**(a)**	Define: (i)Monomer (ii)Polymerization (iii)Number average molecular weight.	**03**
	(b)	Discuss the theory of polymer solutions.	**04**
	(c)	Discuss polymerization reactions in details.	**07**
Q.4	**(a)**	What unit operations are being used in polymer Industries.	**03**
	(b)	Explain the concepts of tacticity and crystallinity in polymer	**04**
	(c)	State Mark-Houwink Sakurda equation with its significance.	**07**
		OR	
Q.4	**(a)**	Explain Stereo Polymerization in brief.	**03**
	(b)	Explain chain and random degradation of polymers with examples?	**04**
	(c)	List different techniques of polymerization and explain any one in detail.	**07**
Q.5	**(a)**	Explain processing of polymer by extrusion in brief.	**03**
	(b)	Explain Injection molding.	**04**
	(c)	Discuss applications of polymers in Chemical industries.	**07**
		OR	
Q.5	**(a)**	Explain block and graft polymers.	**03**
	(b)	Explain Blow molding.	**04**
	(c)	Explain Co-ordination polymerization and condensation Polymerization.	**07**

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