

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI(NEW) EXAMINATION – WINTER 2022****Subject Code:3160511****Date:16-12-2022****Subject Name:Polymer Science and Technology****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.
4. Simple and non-programmable scientific calculators are allowed.

		Marks
Q.1	(a) Define: (i)Weight average molecular weight (ii)Viscosity average molecular weight (iii) Z average molecular weight.	03
	(b) Compare bulk and solution polymerization.	04
	(c) List different techniques of polymerization and explain any one. .in detail	07
Q.2	(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	
	(c) Discuss classification of polymer in detail.	07
Q.3	(a) What is degree of polymerization and functionality?	03
	(b) Compare emulsion and suspension polymerization.	04
	(c) Write a short note on Co-Polymerization.	07
	OR	
Q.3	(a) Define: (i)Monomer (ii)Polymerization (iii)Number average molecular weight.	03
	(b) Differentiate Chain and random polymerization.	04
	(c) Explain addition polymerization with its classifications.	07
Q.4	(a) Explain different types of monomer.	03
	(b) Describe rearrangements and stereo Polymerization.	04
	(c) Describe thermal degradation and mention the factors affecting the thermal stability of polymers?	07
	OR	
Q.4	(a) Explain polymer dispersity and molecular weight distribution.	03
	(b) Explain calendaring in polymer industry.	04
	(c) Explain Injection molding and Blow molding.	07
Q.5	(a) Explain block and graft polymers.	03
	(b) Discuss the theory of polymer solutions	04
	(c) Explain Co-ordination polymerization and condensation Polymerization.	07
	OR	
Q.5	(a) Explain processing of polymer by extrusion in brief.	03
	(b) Discuss different methods for rubber processing.	04
	(c) Explain chain and random degradation of polymers with examples.	07
