

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-III (New) EXAMINATION – WINTER 2018****Subject Code: 2132301****Date: 28/11/2018****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.

		MARKS
Q.1	(a) Draw the structures of i) PMMA ii) Polystyrene iii) Polyvinyl alcohol.	03
	(b) Differentiate between Addition and Condensation Polymerisation.	04
	(c) Give detailed classification of polymers giving suitable examples.	07
Q.2	(a) Define giving examples i) Monomer ii) Polymer iii) Polymerisation	03
	(b) Give the functionality of the following i) CH_3COOH ii) CH_3NCO iii) $\text{HOCH}_2\text{CH}_2\text{OH}$ iv) $\text{H}_2\text{NCH}_2(\text{CH}_2)_4\text{CH}_2\text{NH}_2$	04
	(c) Write a short note on Free Radical Polymerisation.	07
	OR	
	(c) Explain coordination Polymerisation technique.	07
Q.3	(a) Define Initiators. List any three initiators used for free radical polymerization.	03
	(b) What is the molecular weight of PE if the no. of repeating units is 1200?	04
	(c) Differentiate low molecular weight compounds and polymers.	07
	OR	
Q.3	(a) Explain briefly spherulites.	03
	(b) Write a short note on Inhibitors.	04
	(c) Explain linear, branched and cross linked polymer with suitable example	07
Q.4	(a) Explain the relation between T_g & molecular weight.	03
	(b) Explain Suspension polymerization technique.	04
	(c) Write a brief note on functionality of polymers. Explain giving examples.	07
	OR	
Q.4	(a) What is tacticity in polymers? Explain briefly.	03
	(b) Explain giving examples the Acidolysis and Aminolysis reactions.	04
	(c) Explain factors affecting crystallisability in polymers.	07
Q.5	(a) Discuss Polycondensation reaction of ethylene glycol and adipic acid to form polyesters.	03
	(b) Explain the bulk polymerization technique with its advantages & disadvantages	04

- (c) Define: Glass transition temperature. Explain factors influencing the Glass transition temperature with suitable examples. **07**

OR

- Q.5** (a) Explain Geometric Isomerism in polymers. **03**
(b) Explain the relationship between T_g and Plasticisers. **04**
(c) Differentiate between crystalline and amorphous polymers. **07**

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