

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV EXAMINATION – SUMMER 2025

Subject Code:3142309

Date:15-05-2025

Subject Name: Thermoplastic Materials

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) Describe the basic characteristics of thermoplastic materials.	03
	(b) Discuss the properties & applications of Polyvinyl chloride.	04
	(c) Explain the manufacturing of Low Density Polyethylene by High Pressure process with a neat diagram.	07
Q.2	(a) List the applications of High Impact Polystyrene.	03
	(b) Discuss the properties and applications of PMMA.	04
	(c) Explain the manufacturing of Nylon 66 with a neat flow diagram.	07
	OR	
	(c) Describe the manufacturing Polycarbonate by Phosgenation process.	07
Q.3	(a) Discuss the properties & applications of Polyacetal.	03
	(b) Explain giving examples, what are hygroscopic materials and what care has to be taken while processing them.	04
	(c) Explain the manufacturing of Polystyrene by Mass Polymerization technique.	07
	OR	
Q.3	(a) List the applications of LDPE.	03
	(b) Describe the manufacturing of PMMA sheet through bulk polymerization technique.	04
	(c) Discuss the properties and applications of the following i) EVOH ii)EVA	07
Q.4	(a) List any three transparent thermoplastic materials.	03
	(b) Explain the preparation of following monomers i)Styrene from Ethyl benzene ii) Vinyl chloride	04
	(c) Describe the manufacturing of High Density Polyethylene with a neat diagram.	07
	OR	
Q.4	(a) Explain the preparation of Methyl Methacrylate monomer.	03
	(b) List the properties and applications of Polycarbonate.	04
	(c) Describe the manufacturing of Linear Low Density Polyethylene through UNIPOL process.	07
Q.5	(a) State the raw materials & condensation reaction to prepare Nylon 66.	03
	(b) List the properties & applications of High Density Polyethylene.	04
	(c) Draw the structure & list the properties & applications of Polyethylene terephthalate.	07

OR

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| Q.5 | (a) Discuss about commodity & engineering thermoplastics. | 03 |
| | (b) Draw the structure and list the properties & applications of Polypropylene. | 04 |
| | (c) Draw the structure & list the properties & applications of Acrylonitrile Butadiene Styrene. | 07 |
