

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER- V EXAMINATION – SUMMER 2026****Subject Code:3152308****Date:06-06-2026****Subject Name: Plastics Testing-II****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) Give ASTM standards for: VST, Arc Resistance, and ESCR.	03
	(b) Discuss Arc Resistance test for Plastic samples.	04
	(c) Explain heat deflection temperature (HDT) test along with factors affecting test results.	07
Q.2	(a) Give difference between HDT and VST.	03
	(b) Explain flammability test for self-supporting plastics in Horizontal position with neat diagram.	04
	(c) Explain Environmental stress cracking resistance (ESCR) test.	07
OR		
	(c) Explain Capillary Viscometer test procedure used to determine Intrinsic viscosity.	07
Q.3	(a) Discuss immersion test for chemical resistance properties of plastic sample.	03
	(b) Explain vicat softening temperature (VST) test procedure with neat diagram.	04
	(c) Explain test method to determine refractive index of polymers with neat diagram.	07
OR		
Q.3	(a) Discuss about volume and surface resistivity.	03
	(b) Explain test procedure to determine dielectric Strength.	04
	(c) Explain oxygen transmission rate (OTR) to determine barrier properties.	07
Q.4	(a) Define: HDT, coefficient of thermal expansion, dielectric constant.	03
	(b) Discuss test procedure to determine thermal conductivity of plastic materials.	04
	(c) Define Limited Oxygen Index (LOI). Explain Oxygen Index Test carried out for plastics materials.	07
OR		
Q.4	(a) List the typical requirements of an insulator.	03
	(b) Explain Ultrasonic NDT method using pulse echo Technique.	04
	(c) Explain Gel permeation chromatography (GPC) to determine molecular weight distribution of plastics.	07
Q.5	(a) Define: Gloss, Haze and Refractive Index.	03
	(b) Explain test method to determine coefficient of thermal expansion.	04
	(c) List various Accelerated weathering tests. Explain exposure to fluorescent UV lamps test with neat diagram.	07

OR

- Q.5** (a) Give full name of: DMA, TGA, TMA **03**
(b) Explain flammability test for self-supporting plastics in vertical position with neat diagram. **04**
(c) Explain Differential scanning Calorimetry (DSC) test method along with its applications. **07**
