

GUJARAT TECHNOLOGICAL UNIVERSITY**BE – SEMESTER- V EXAMINATION-SUMMER 2023****Subject Code: 3152308****Date: 03/07/2023****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: HDT, Arc Resistance and Refractive index.	03
	(b) Discuss the procedure to determine Vicat softening temperature.	04
	(c) Discuss heat deflection temperature of plastic material With suitable diagram	07
Q.2	(a) List various Electrical and Optical properties of Plastics.	03
	(b) Explain test procedure to determine coefficient of linear thermal expansion.	04
	(c) State test method to determine Arc resistance of plastic materials.	07
OR		
	(c) Explain test procedure to determine Dilute Solution Viscosity of Polymers.	07
Q.3	(a) Explain flame test to identify PVC	03
	(b) Give the testing procedure used to measure the percentage of oxygen present to support combustion of plastic.	04
	(c) Define Luminous transmittance. Explain test procedure to determine Luminous transmittance and Haze.	07
OR		
Q.3	(a) Give Immersion Test method in brief.	03
	(b) Explain the Dielectric constant-dissipation factor	04
	(c) Explain oxygen transmission rate (OTR) test method of plastics.	07
Q.4	(a) Define viscosity and write two name of Viscometer	03
	(b) Explain the Gel Permeation Chromatography (GPC) and write their application.	04
	(c) Explain Environmental stress cracking resistance (ESCR) test used for plastic material.	07
OR		
Q.4	(a) List various Electrical and Optical properties of Plastics.	03
	(b) Explain Thermal analysis tech of TMA .	04
	(c) Discuss DSC technique and draw a typical DSC thermo- gram.	07
Q.5	(a) What is V-0,V-1 and V-2 in vertical burning.	03
	(b) Explain Ultrasonic NDT method for Plastic materials.	04
	(c) Explain the thermo gravimetric technique in detail (TGA).	07
OR		
Q.5	(a) Describe Volume and surface resistivity of plastics.	03

- (b) Explain Pulse echo and transmission technique. **04**
- (c) Explain the Dynamic mechanical analysis (DMA) and write their application. **07**
