

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2021****Subject Code:3152308****Date:17/12/2021****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) Define: HDT, VSP and Dielectric strength	03
	(b) Give ASTM standards for: ESCR, HDT, Arc Resistance and Refractive index.	04
	(c) Explain test procedure for determination of Heat Deflection Temperature (HDT) of Plastics with neat diagram.	07
Q.2	(a) List various Electrical and Optical properties of Plastics.	03
	(b) Discuss Vicat Softening Point (VSP) test procedure with neat diagram.	04
	(c) List various test methods to determine dielectric strength and explain them in detail.	07
OR		
	(c) Explain Capillary Viscometer test procedure used to determine Intrinsic viscosity.	07
Q.3	(a) Explain flammability test for solid plastics in vertical position.	03
	(b) Describe solvent stress cracking test procedure with neat diagram.	04
	(c) Explain Oxygen Index Test carried out for plastics materials.	07
OR		
Q.3	(a) Define: Luminous transmittance, Haze and Brittleness temperature.	03
	(b) Discuss Dielectric constant test using suitable diagram.	04
	(c) Define: Thermal conductivity. Explain Thermal conductivity test as per ASTM standard.	07
Q.4	(a) Explain Non destructive testing using Ultrasonic Pulse echo technique.	03
	(b) Explain Flammability test for Self supporting plastics in horizontal position.	04
	(c) Discuss Gel Permeation Chromatography (GPC).	07
OR		
Q.4	(a) Explain coefficient of linear thermal expansion test.	03
	(b) Discuss Arc Resistance test for Plastic samples.	04
	(c) Explain Environmental stress cracking resistance (ESCR) test used for plastic material.	07

- Q.5** (a) Describe Volume and surface resistivity of plastics. **03**
(b) Explain oxygen transmission rate (OTR) test method of plastics. **04**
(c) Discuss Refractive index test method with neat diagram. **07**

OR

- Q.5** (a) Draw a typical DSC thermogram and list the applications of DSC. **03**
(b) Explain Specular Gloss test procedure for plastics. **04**
(c) Explain Accelerated weathering test using exposure to fluorescent UV lamps. **07**
