

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI (NEW) EXAMINATION – WINTER 2018

Subject Code: 2162307

Date: 20/11/2018

Subject Name: Testing and Identification of Plastic Materials

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.

		MARKS
Q.1	(a) Define Testing. List reasons for Testing.	03
	(b) Explain about Specification and standards.	04
	(c) Explain generalize stress-strain curve in detail.	07
Q.2	(a) Define HDT. List the factors affecting HDT	03
	(b) Explain Compressive strength test.	04
	(c) List the Hardness test carried out for plastic. Explain Rockwell hardness test in detail.	07
OR		
	(c) Explain DSC test with neat sketch.	07
Q.3	(a) Define (1) Creep (2) Stress Relaxation (3) Yield point	03
	(b) What is Flexural strength? Explain the test procedure	04
	(c) Explain Izod Impact test with factors affecting its test result.	07
OR		
Q.3	(a) (1) A _____ material shows low modulus, low yield stress but very high elongation and high stress at break. (i) soft & tough (ii) soft & weak (iii) hard & tough (2) What is crack initiation energy? (3) Give full form of (i) ASTM (ii) ISO	03
	(b) Explain: Shear strength Test	04
	(c) Define creep. Explain about creep properties of plastics material in detail.	07
Q.4	(a) Explain Arc Resistance Test.	03
	(b) Explain: Abrasion Resistance Test	04
	(c) Explain about Thermal conductivity Test (ASTM C177) in detail.	07
OR		
Q.4	(a) List the factors affecting Tensile Strength Test results.	03
	(b) Explain Co-efficient of Linear Thermal Expansion Test (ASTM D696) for plastics material in brief with neat sketch	04
	(c) Explain about Thermo gravimetric Analysis (TGA) Test in detail.	07
Q.5	(a) Define Refractive Index, Luminous Transmittance & Haze.	03
	(b) Define flame retardant and self extinguish Plastics. Make a list of Inherently flame retardant, Less flame retardant and quite flammable plastics material.	04
	(c) Explain about Di-electric strength Test (ASTM D 149) in detail. List and explain factors affecting the test results.	07
OR		
Q.5	(a) Explain spiral flow test.	03
	(b) Explain ESCR test in detail with neat sketch	04
	(c) Explain basic combustion process of Plastics material	07