

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-IV EXAMINATION – WINTER 2025

Subject Code:3142311

Date:24-11-2025

Subject Name:Plastics Testing-1

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 Testing and list various reasons for testing.	03
	(b) Give the full form of (i) ASTM (ii) ISO (iii) BIS (iv) DIN	04
	(c) Define tensile strength. Write in detail about the test to determine tensile properties.	07
Q.2	(a) List the various types of mechanical test perform for plastics.	03
	(b) Write the ASTM Standards of the following tests. (i) Tensile test (ii) Abrasion test (iii) Flexural test (iv) Impact test	04
	(c) Define- (i) Gauge length (ii) Stress (iii) Strain (iv) Modulus of elasticity (v) Necking (vi) Yield point	07
	OR	
	(c) Explain test procedure to determine Burst Strength of Plastic sample.	07
Q.3	(a) Define creep in short.	03
	(b) Explain test procedure to determine Shear Strength of Plastic sample.	04
	(c) List the methods to identify plastic materials and explain (i) sound test, (ii) flotation test, (iii) appearance test, (iv) Visual test	07
	OR	
Q.3	(a) What is the sample size and notch size of impact strength sample?	03
	(b) Explain cup flow and spiral flow test with diagram.	04
	(c) Define impact strength. Explain the process to carry out the impact test.	07
Q.4	(a) What is the need for Quality control? How is testing related to Quality Control?	03

- (b) Explain the test method to determine the density of polymeric material. **04**
- (c) What is flexural strength? Define it and state its type. Explain any one procedure in detail. **07**

OR

- Q.4** (a) Describe copper wire test for identification. **03**
- (b) Explain stress-strain behavior for Plastic materials. **04**
- (c) What is compressive strength? Which test method is used to determine it? Explain in detail. **07**
- Q.5** (a) Describe Solubility test for identification of plastics materials. **03**
- (b) Explain bending test and tearing test to identify plastic materials with examples. **04**
- (c) Define Hardness. Explain Rockwell hardness test in detail. **07**

OR

- Q.5** (a) Give density of LDPE, PS, and PVC **03**
- (b) Give difference between specific gravity and gradient density. **04**
- (c) Define MFI. Explain Melt flow index test procedure with neat diagram. **07**
