

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-IV (NEW) EXAMINATION – WINTER 2024****Subject Code: 3142311****Date: 27-11-2024****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) What are specification and standards? Give purpose of testing.	03
	(b) Explain spiral flow and cup flow test with neat diagram.	04
	(c) Discuss Stress-strain diagram in detail.	07
Q.2	(a) Discuss specimen preparation for rigid & soft plastic thermoplastic sheet.	03
	(b) Explain identification of given plastic materials on Copper wire test. (1)PP (2)PS (3)PVC (4)ABS	04
	(c) Explain tensile test procedure as per ASTM standard in detail.	07
	OR	
	(c) Explain the bulk density of plastic material in detail.	07
Q.3	(a) Give ASTM standards for the following: (1) Tensile strength (2) MFI (3) Izod.	03
	(b) What is resilience and toughness?	04
	(c) Explain Melt Flow Index with neat diagram and test procedure in detail.	07
	OR	
Q.3	(a) Explain water absorption test method.	03
	(b) List and discuss processes used for specimen preparation from thermoplastic.	04
	(c) Explain flexural test procedure as per ASTM standard in detail.	07
Q.4	(a) State full forms of ISO, ASTM and BIS.	03
	(b) Explain izod impact test procedure with neat diagram.	04
	(c) Explain impact test procedure as per ASTM standard in detail.	07
	OR	
Q.4	(a) Explain charpy impact test procedure with neat diagram	03
	(b) Give suitable solvents for the following plastics: (1)PS (2)PVC (3)PET (4)PU	04
	(c) Explain Shear strength test procedure as per ASTM standard in detail.	07
Q.5	(a) Define: failure, fracture, fatigue.	03
	(b) Give standard conditioning for tensile strength as per ASTM.	04
	(c) Explain test procedure as per ASTM standard in detail.	07
	OR	
Q.5	(a) Give characteristics of plastics, sink/float when immersed into water (1)PE (2)PVC (3)PA (4)ABS	03
	(b) What is creep? Explain strain hardening and recovery.	04
	(c) Explain Rockwell hardness test procedure as per ASTM standard in detail.	07
