Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV (NEW) EXAMINATION – SUMMER 2022

Subject Code:3142311 Date:04-07-2022

Subject Name:Plastics Testing-1

Time:10:30 AM TO 01:00 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 standards.	**03**
	(b)	Give the full form of (i) ASTM (ii) ISO (iii) BIS (iv) DIN	**04**
	(c)	What is the need of testing and standardization in plastic industry? Explain in details	**07**
Q.2	**(a)**	Classify Mechanical tests.	**03**
	(b)	Testing and quality goes hand in hand. Explain the sentence.	**04**
	(c)	What is compressive strength? Which test method is used to determine it? Explain in detail.	**07**
		OR	
	(c)	Explain in detail procedure to carry out 3 point bending test.	**07**
Q.3	**(a)**	Describe copper wire test for identification.	**03**
	(b)	Explain bending test and tearing test to identify plastic materials with examples.	**04**
	(c)	Which are the test methods to identify plastic materials? List them and explain (i) sound test, (ii) flotation test, (iii) appearance test.	**07**
		OR	
Q.3	**(a)**	Explain the need to identify plastic materials.	**03**
	(b)	Write short note on creep.	**04**
	(c)	Explain the identification of given plastic materials based on combustion test. (i) PE (ii) PVC (iii) PC (iv) PS (v) PA (vi) Polyurethane (vii) Phenol Formaldehyde	**07**
Q.4	**(a)**	What are flow properties of plastic materials? How does it affect the processing parameters of same?	**03**

	(b)	Explain water absorption test	**04**
	(c)	Write in detail about cup flow test and spiral flow test	**07**
		OR	
Q.4	**(a)**	What is density? What is the role of density in plastic industry?	**03**
	(b)	Explain the test method to determine the density of polymeric material.	**04**
	(c)	What is full form of MFI? Explain the test to determine MFI in detail.	**07**
Q.5	**(a)**	Define hardness and state its types.	**03**
	(b)	Define- (i) Stress (ii) Strain (iii) Gauge length (iv) Percentage elongation	**04**
	(c)	Define tensile strength. Write in detail about the test to determine tensile properties.	**07**
		OR	
Q.5	**(a)**	Define Flexural Strength. State its types.	**03**
	(b)	Define Shear strength and write the procedure to calculate the same.	**04**
	(c)	What are impact properties? Explain the process to carry out impact test.	**07**

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