Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII • EXAMINATION – WINTER • 2014

Subject Code: 172305 **Date: 29-11-2014**

Subject Name: Plastics Testing and Instrumental Analysis

Time: 10:30 am - 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.**

Q.1	**(a)**	Explain in details the Basic concepts of testing-specifications and Standards for perform the testing of plastics.	**07**
	(b)	Define Proportional Limit, Secant Modulus & Yield Point. Show and explain the stress-strain behavior of various types of plastic material.	**07**
Q.2	**(a)**	What is flexural strength? What are the factors influence the flexural strength of plastic material? Provide brief steps for performing flexural test.	**07**
	(b)	Write short notes on 1. Strain 2. Modulus of Elasticity 3. Stress 4. Toughness	**07**
		OR	
	(b)	Write short notes on a) Creep b) Stress Relaxation c) Compression Test	**07**
Q.3	**(a)**	Define tensile strength? What are the factors influence the tensile strength of plastic material? Provide brief steps for performing tensile test.	**07**
	(b)	Define MFI. Explain how this test is carried out for plastics material along With its significance?	**07**
		OR	
Q.3	**(a)**	Define VSP. Explain how this test is carried out for plastics material along With its significance?	**07**
	(b)	Explain all factors that affecting the Impact Strength of plastic material.	**07**
Q.4	**(a)**	Define HDT and explain the test procedure and its significance of the test.	**07**
	(b)	Define Glass transition temperature (Tg) and explain factors affecting Tg.	**07**
		OR	
Q.4	**(a)**	Define and explain the term Arc Resistance. Explain procedure to Determine Arc Resistance of Plastics with neat sketch.	**07**
	(b)	Define Thermal Conductivity? How do you determine it for plastics by Guarded hot plate method?	**07**
Q.5	**(a)**	Explain the Term Hardness. List the Hardness Tests used for Plastics. Explain Rockwell Hardness Test.	**07**
	(b)	Explain Flammability test for non rigid plastic & Oxygen index test	**07**
		OR	
Q.5	**(a)**	Explain Thermo-mechanical Analysis in details with an example.	**07**
	(b)	Explain Accelerated Weathering test with an example.	**07**

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