

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VII(OLD) • EXAMINATION – WINTER 2016

Subject Code: 172305**Date: 18/11/2016****Subject Name: Plastics Testing & Instrumental Analysis (Department Elective - I)****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.

- Q.1** (a) Explain in details the Basic concepts of testing-specifications and Standards for perform the testing of plastics. **07**
(b) Define tensile strength? What are the factors influence the tensile strength of plastic material? Provide brief steps for performing tensile test. **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) Define Proportional Limit, Secant Modulus & Yield Point. Show and explain the stress-strain behavior of various types of plastic material. **07**
- OR**
- (b) Write in brief the simple material identification tests used in different polymers. **07**
- Q.3** (a) What is Impact Strength? List out the various types. Explain Charpy Impact Test. **07**
(b) Define VSP. Explain how this test is carried out for plastics material along With its significance? **07**
- OR**
- Q.3** (a) Define MFI. Explain how this test is carried out for plastics material along With its significance? **07**
(b) Define HDT and explain the test procedure and its significance of the test. **07**
- Q.4** (a) Explain in details about Differential Scanning Calorimetry (DSC). **07**
(b) Explain the Term Hardness. List the Hardness Tests used for Plastics. Explain Rockwell Hardness Test. **07**
- OR**
- Q.4** (a) Define Thermal Conductivity? How do you determine it for plastics by Guarded hot plate method? **07**
(b) Define and explain the term Arc Resistance. Explain procedure to determine Arc Resistance of Plastics with neat sketch. **07**
- Q.5** (a) Write down the principle and working procedure of Scanning Electron Microscope (SEM). **07**
(b) Write detailed notes on characterization of polymer by using Transmission Electron Microscope (TEM). **07**
- OR**
- Q.5** (a) Write down the principle and working procedure of Fourier Transform Infrared Spectroscopy (FT-IR). **07**
(b) Explain, Flammability test for non rigid plastic & Oxygen index test. **07**
