

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

Subject Code:2172102**Date:18/11/2016****Subject Name:Non Destructive Testing****Time:10.30 AM to 1.00 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) Give the names of all Destructive & Non-destructive testing commonly carried out for components made up of different materials & explain in brief one of the tests under “Destructive ” category. **07**
- (b) Which NDT technique would you recommend for testing ceramic components for open- to- surface discontinuities? Explain in brief the principle & working of the test you have recommended. **07**
- Q.2** (a) What is Visual inspection? What are the visual inspection aids? Highlight the use of Borescope in visual testing. **07**
- (b) Define/Explain leak & leak rate. Explain in brief the leak testing of heat exchanger tubes in a boiler. **07**
- OR**
- (b) Explain in brief the testing of underground oil pipe line for finding leak. **07**
- Q.3** (a) Explain various methods of magnetisation & demagnetisation commonly practiced in Non-destructive testing procedure. **07**
- (b) Explain the principle of MPT & its limitations. **07**
- OR**
- Q.3** (a) Discuss A, B & C scan display on CRT with reference to Ultrasonic pulse echo technique. **07**
- (b) Explain the following: **07**
- i. Near zone & Far zone (2)
 - ii. Acoustic impedance (1)
 - iii. HWDC (1)
 - iv. Mode conversion (1)
 - v. Normal probe & angle probe (2)
- Q.4** (a) With the help of a diagram explain the Pulse echo technique of U.T. **07**
- (b) Discuss the advantages, limitations & variables of Ultrasonic testing. **07**
- OR**
- Q.4** (a) Explain the principle of Eddy current testing & its applications. **07**
- (b) What are different types of test coils used in E.C.T. Explain their typical applications. **07**
- Q.5** (a) Explain the following. **07**
- i. Geometrical Unsharpness(2)
 - ii. Penetrameters (2)
 - iii. X Ray film processing (3)
- (b) Explain the basic principles of Thermography. **07**
- OR**
- Q.5** (a) Give salient features of Acoustic Emission Technique. **07**
- (b) What is Through transmission testing with reference to U.T. Explain its principle & working. **07**
