

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII • EXAMINATION – SUMMER 2013****Subject Code: 172102****Date: 24-05-2013****Subject Name: Non Destructive Testing****Time: 02.30 pm - 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.

Q.1 (a) Describe the testing procedure for Die Penetrant test with neat sketch. **07**
Explain its applications & limitations.

(b) Explain the principle of Radiographic testing with neat diagram. Describe its Demerits. Explain the method for generating Gamma-ray. **07**

Q.2 (a) Explain the basic wave propagation principle of Ultra sonic testing. Discuss the normal beam inspection technique. **07**

(b) What is the principle of Eddy current testing. What are its applications? Explain its merits & demerits. **07**

OR

(b) Explain destructive & non destructive testing . What are the applications, advantages & disadvantages of Non destructive testing with compare to destructive testing. **07**

Q.3 (a) Discuss the basic principle of Thermo graphic Testing. What are the scope & limitations of Thermo graphic Testing? **07**

(b) Explain the Acoustic emission testing techniques with neat sketch. Write its applications & advantages. **07**

OR

Q.3 (a) Discuss the principle of Holographic testing. Explain its technique & Explain one specific application of it. **07**

(b) Discuss the various defects in casting & Rolling. Explain & justify one NDT Technique used to characterize Rolling defects. **07**

Q.4 (a) Define the magnetic particle testing. What are the various methods used to magnetize the specimen, with neat diagram. **07**

(b) What are the A-scan. B-scan ,C-scan presentations in Ultrasonic testing. explain each with specific application. **07**

OR

Q.4 (a) Discuss various methods used in Leak & Pressure testing & explain the underlying principle of the testing. **07**

Q.4 (b) Define the visual testing technique. What are the various Instruments used to enhance the testing. **07**

Q.5 (a) Differentiate between X-ray & gamma-ray radiographic testing. **07**

(b) Explain various defects in welded products & defects due to heat treatment with causes. **07**

OR

Q.5 (a) Write short notes on Tomography & MRI testing methods of NDT **07**

(b) i. Define Piezoelectric Materials & penetrant testing Materials. **03**

ii. Define Magnetic flux & draw diagram of different types of magnetic fields used in MPT. **02**

iii. Draw diagram of Angle Beam Transducer & explain. **02**
