Seat No.: _____ Enrolment No._____

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. Explain its applications & limitations.	**07**
	(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**

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