Seat No.: _____ Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY

**BE - SEMESTER–VII • EXAMINATION – WINTER 2013**

**Subject Code: 172102** **Date: 05-12-2013**

**Subject Name: Non Destructive Testing**

**Time: 10:30 TO 01:00** **Total Marks: 70**

**Instructions:**

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

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|---|---|---|---|
| **Q.1** | **(a)** | With necessary sketch discuss dye penetrant testing in detail. | **07** |
| | **(b)** | What is the principle of ultrasonic testing? Discuss different methods of ultrasonic testing. | **07** |
| **Q.2** | **(a)** | With neat sketch discuss the causes of defects in casting and welding. | **07** |
| | **(b)** | What are the different NDT methods? State its advantages and limitations. | **07** |
| | | **OR** | |
| | **(b)** | What are different material testings? Differentiate between them. | **07** |
| **Q.3** | **(a)** | What is co-plant in ultrasonic testing, gives its role? Give advantages and limitations of ultrasonic testing. | **07** |
| | **(b)** | Write note on Visual examination and list different Visual examination methods explain any one. | **07** |
| | | **OR** | |
| **Q.3** | **(a)** | Explain different transducers in ultrasonic testing with neat sketch. | **07** |
| | **(b)** | Explain leak testing principle and helium leak detection technique. | **07** |
| **Q.4** | **(a)** | Discuss principle of radiographic testing and give its application and limitation. | **07** |
| | **(b)** | Write note on Acoustic Emission Testing. | **07** |
| | | **OR** | |
| **Q.4** | **(a)** | Discuss magnetic particle testing principle, advantages and limitations. | **07** |
| | **(b)** | Discuss eddy current testing principle, advantages and limitations. | **07** |
| **Q.5** | **(a)** | Discuss briefly about selection of different NDT techniques for detection of defects. | **07** |
| | **(b)** | Explain basic principles of Thermography. | **07** |
| | | **OR** | |
| **Q.5** | **(a)** | Write short note on geometric unsharpness. | **07** |
| | **(b)** | Write short note on piezoelectricity. | **07** |

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