

**B.Tech. MECHANICAL ENGINEERING  
(BTMEVI)**

**Term-End Examination  
June, 2013**

006907

**BIMEE-011 : NON-DESTRUCTIVE TESTING**

*Time : 3 hours*

*Maximum Marks : 70*

*Note : Attempt ten questions in all. Question No. 1 is compulsory. All questions carry equal marks.*

1. State whether the following statements are true (T) or false (F) : 7x1=7
  - (a) Magnetic particle test can be done on all metals.
  - (b) Radiography has limitation on metal thickness.
  - (c) Eddy current test can also be used to measure the thickness of a non-conducting coating such as paint on a metal.
  - (d) Elastic waves with frequencies higher than the audio range are known as ultrasonic.
  - (e) Radiography can be done using X-ray or  $\gamma$ -rays (both).
  - (f) Radiography is a cheaper NDT.
  - (g) Magnetic particle inspection can be done on sub-surface discontinuities.
  
2. Discuss the role of non-destructive testing techniques in modern production. 7

3. Describe in brief the Magnetic Crack Detection method of Non-destructive testing. 7
4. Explain the advantages of  $\gamma$ -ray radiography over X-ray radiography. 7
5. Enumerate ultrasonic inspection method to detect flaws in cast and wrought metal parts and in welded joints. 7
6. Discuss in brief the advantages and limitations of the magnetic - particle inspection technique. 7
7. Compare the limitations of Non-destructive and Destructive testing. 7
8. Describe zygo test with the help of neat diagram. 7
9. How photo electric effect can be used as Non-destructive technique ? Explain with the help of a neat diagram. 7
10. What safety measures would you consider as precautions against radiation hazards ? 7
11. Describe in brief the advantages, limitation and typical applications of ultrasonic testing methods. 7
12. What are the advantages and limitations of Eddy Current Inspection Method ? 7