

IV B.Tech I Semester Supplementary Examinations, November 2005

NDT METHODS

(Metallurgy & Material Technology)

Time: 3 hours

Max Marks: 80

**Answer any FIVE Questions
All Questions carry equal marks**

1. What is NDT? Discuss about the development of NDT and its important aims.
[16]
2. Explain in detail about the classification of emulsifiers and their applications in penetrant flaw detection.
[16]
3. (a) What made the scientists to use Radio graphical methods for NDT?
(b) What is the principle of Radio graphical method?
(c) What are the sources used for NDT and briefly explain about the two major sources used for industrial applications.
[4+4+8]
4. (a) Differentiate between pulse-echo method and transmission method.
(b) With a neat sketch explain the operation of Ultrasonic testing equipments.
[4+12]
5. (a) what is skin effect?
(b) How hysteresis loop is used for magnetic particle flaw detection?
(c) Describe magnetic flux density and intensity of magnetization.
[4+8+4]
6. (a) Describe with a neat sketch the eddy current probes used in the case of plate specimens and tubular specimens.
(b) Explain how cracks in a specimen are detected with eddy currents.
[8+8]
7. Discuss the principles of hysteresis loop tests and comparator – bridge tests? What are the applications and limitations of electromagnetic testing methods?
[16]
8. (a) What is acoustic emission inspection?
(b) What is the basic principle of acoustic emission inspection?
(c) Explain the relationship of acoustic emission inspection with other test methods?
[4+4+8]
