



B.E. / B.Tech. (Full Time) DEGREE ARREAR EXAMINATIONS, APRIL / MAY 2012

MATERIALS SCIENCE AND ENGINEERING BRANCH

SEVENTH SEMESTER – (REGULATIONS 2008)

ML 9402 – NON DESTRUCTIVE MATERIALS EVALUATION

Time : 3 hrs

Max Marks: 100

Answer ALL Questions

Part – A (10 x 2 = 20 Marks)

1. Name some of the methods that are used to detect internal defects.
2. What are the applications of Visual inspection method?
3. Differentiate between Hydrophilic and Lipophilic emulsifiers.
4. Why is it necessary to magnetize a component more than once for successful magnetic particle inspection?
5. What is the principle behind Eddy current Testing?
6. What are the uses of a Penetrameter?
7. Define Acoustic impedance.
8. What are the various ways of data representation in Ultrasonic Testing?
9. What is the Film Density in Radiography? Give the expression for Film Density.
10. What do you mean by Computer Tomography?

Part – B (5 x 16 = 80 Marks)

11. a. Describe in detail the various Optical aids that can be used for visual inspection.

12. a. Explain in detail the procedure for Penetrant testing.

(OR)

b. What are the various Magnetisation techniques that can be used for magnetising a material? Explain with diagrams.

13. a. (i). Describe in detail the various techniques used in Eddy Current Testing for detecting the defects. (12)

(ii). What are the applications of Eddy current testing? (4)

(OR)

b. (i). Differentiate between Active and Passive Thermography. (4)

(ii). Thermal imaging is being used in various fields of Technology. Explain. (12)

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14. a. What are the basic properties of Ultrasonic waves? Describe the two main ultrasonic Techniques.

(OR)

b. Describe the Experimental setup of Acoustic Emission testing.

15. a. Discuss in detail about the Electromagnetic radiation Sources.

(OR)

b. Explain the various methods of inspection techniques in Radiography Testing with diagrams.
