



B.E. / B.Tech. (Full Time) ARREAR EXAMINATIONS, APRIL / MAY 2013

MATERIALS SCIENCE AND ENGINEERING BRANCH

SEVENTH SEMESTER – (REGULATIONS 2008)

ML9402 – NON-DESTRUCTIVE MATERIALS EVALUATION

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Time : 3 hrs

Max Marks: 100

Answer ALL Questions

Part – A (10 x 2 = 20 Marks)

1. Name the defects that can be detected by visual inspection.
2. Differentiate between Hydrophilic & Lipophilic Emulsifiers.
3. Why should the material be demagnetized after it is subjected to MPT?
4. What is Eddy current?
5. What is the Film Density in Radiography? Give the expression for Film Density.
6. What is a Penetrameter?
7. Define Acoustic Impedance.
8. What are the applications of Acoustic Emission testing?
9. What is the Basic principle of Thermography?
10. What do you mean by Holography?

Part – B (5 x 16 = 80 Marks)

11. 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 Magnetization techniques that can be used for magnetizing a material? Explain with diagrams.

13. a. (i). Discuss the instrumentation used for Eddy current Testing. (12)

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

(OR)

b. (i) Distinguish between Active and passive Thermography with diagrams. (8)

(ii) Discuss about the application of Thermography in flaw detection. (8)

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14. a. (i) How are Ultrasonic waves generated? (3)  
(ii) Discuss about the different types of Ultrasonic transducers. (13)  
(OR)
- b. (i) What is the principle of Acoustic emission Technique? (4)  
(ii) Discuss about the various parameters in Acoustic emission Technique. (12)
15. a. Describe the Working principle of X-Radiography with neat sketch.  
(OR)
- b. (i) Discuss about the safety aspects related to X-Radiographic Testing. (8)  
(ii) Write short notes on the penetrameters and sensitivity in radiography testing. (8)

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