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B.E. / B.Tech. (Full Time) DEGREE END SEMESTER EXAMINATIONS, NOV/DEC, 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 NDT techniques methods that can be used to detect internal defects.
2. What are fibrosopes?
3. What is the effect of the size of the magnetic particles on the test performance in MPT?
4. Why is it necessary to magnetize a component more than once for successful magnetic particle inspection?
5. How does the depth of penetration of eddy current is affected by the frequency of the current?
6. What is Liquid Crystal thermography?
7. What is the effect of acoustic impedance of the media on the performance of Ultrasonic inspection?
8. What are focussed transducers?
9. Name some of the machine designs used for the production of high energy X-rays?
10. How does Computer Tomography differs from other imaging techniques?

Part – B (5 x 16 = 80 Marks)

11. a. Describe in detail the various Optical aids that are used for visual inspection.
 12. a. (i) Discuss about the physical principles of Liquid Penetrant testing. [6]
(ii) Explain the Post-emulsifiable lipophilic and Solvent removable methods using process flow diagram. [10]
- (OR)
- b. (i) Discuss about the various ways of magnetizing the component for MPT. [12]
(ii) Write down the limitations of Magnetic Particle Testing. [4]

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13. a. (i) Explain the principle of Eddy current testing with neat diagram. [6]
(ii) Discuss about the various types of coils used for Eddy current inspection. [10]

(OR)

- b. (i). Differentiate between Active and Passive Thermography. [4]
(ii). Write down the Advantages, Limitations and Applications of EDT. [12]

14. a. (i) Describe the various types of Ultrasonic waves on the basis of the mode of particle displacement. [12]
(ii) Briefly explain about the various ways of data interpretation in UT. [4]

(OR)

- b. Explain in detail the Pulse Echo and through Transmission Technique in UT with neat sketches.

15. a. (i) Explain the principles of Radiography testing with neat diagram. [10]
(ii) Discuss about the image conversion media in Radiography. [6]

(OR)

- b. Describe about Neutron radiography inspection process in NDT.
