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B.E / B.Tech (Full Time) DEGREE END SEMESTER ARREAR EXAMINATIONS, NOV/DEC 2013

MATERIAL SCIENCE AND ENGINEERING BRANCH

EIGHTH SEMESTER - (REGULATION 2008)

29

ML9402 – NON DESTRUCTIVE MATERIAL EVALUATION

Time: 3 hr

Max. Mark: 100

ANSWER ALL QUESTIONS

PART-A (10 X 2 = 20 MARKS)

1. Mention any two techniques by which density variations in Powder Metallurgy processing can be detected.
2. What are the limitations in using magnetic particle testing, while inspecting casting defects?
3. What do you understand by hydrophilic emulsifiers?
4. Specify the methods of magnetization in Magnetic particle testing.
5. How the surface of specimen to be inspected by thermography technique to be prepared?
6. Does the lift off useful in eddy current inspection? If so how?
7. Distinguish B and C scans with respect to flaw detection.
8. Mention the basis of selecting a couplant in Ultrasonic inspection.
9. What do you understand by contrast sensitivity with respect to Radiographic inspection?
10. Mention the applicability of tomography technique in composite material inspection.

PART-B (5 X 16 = 80 MARKS)

11. i. Discuss a visual inspection technique for monitoring surface roughness of an object. (10)
ii. Compare the advantages and limitations of various NDE techniques. (6)
12. a) Explain the methodology of inspecting a surface crack in an object by liquid penetrant. (OR)
b) i. Write a brief note on power source used in magnetic particle inspection. (8)
ii. Discuss the general applications, advantages and limitations of various magnetizing methods used in magnetic particle inspection. (8)
13. a) Compare and contrast active and passive thermography techniques. Also discuss the steps in thermal inspection.

(OR)