

CRASH COURSE

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10AU761

Seventh Semester B.E. Degree Examination, May 2017 Non Destructive Testing

Time: 3 hrs.

Max. Marks:100

Note: Answer FIVE full questions, selecting at least TWO questions from each part.

PART – A

- 1 a. Explain with a neat sketch construction and working of a Helium leak detector. (10 Marks)
b. Explain briefly with a neat sketch micro structural analysis by microscopy techniques. (10 Marks)
- 2 a. What are the different methods used in penetrant testing? Explain any one method.(10 Marks)
b. List the different methods of magnetization in MPI and explain any one with sketches. (10 Marks)
- 3 a. Explain the various types of coils used in Eddy current inspection with neat sketches. (10 Marks)
b. What is the effect of the following operating variable on Eddy current inspection? Explain with a neat sketches:
i) Conductivity of the material.
ii) Lift off factors. (10 Marks)
- 4 a. Explain in brief thermal inspection. List the application of thermal inspection. (10 Marks)
b. With a neat sketch, explain the principle of optical holography and list its applications. (10 Marks)

PART – B

- 5 a. What are the major variables in ultrasonic inspection? Explain. (10 Marks)
b. Explain the following with neat sketches: i) 'A' scan system; ii) 'B' scan system. (10 Marks)
- 6 a. With the aid of a neat sketches, explain the following as applied to ultrasonic inspection:
i) Contact type search unit.
ii) Immersion type search unit. (12 Marks)
b. Mention the advantages, disadvantages and application of ultrasonic inspection. (08 Marks)
- 7 a. What is the basic principle of radiographic inspection? Discuss its advantages, disadvantages and applications. (10 Marks)
b. Explain with a neat sketch computer tomography and its applications. (10 Marks)
- 8 a. Explain briefly experimental test setup for Acoustic Emission Technique (AET). (10 Marks)
b. Compare acoustic inspection methods with other inspection methods. (05 Marks)
c. List six applications of Acoustic Emission test methods. (05 Marks)

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Important Note - 1. On completing your answers, immediately hand over your answer sheet to the invigilator. 2. Any attempt at unfair means or malpractice will be treated as malpractice. 3. Any revealing of identification, appeal to evaluator and/or equations written e.g. $4 \times 8 = 32$, will be treated as malpractice.