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**Seventh Semester B.E. Degree Examination, Dec.2015/Jan.2016**  
**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. What is non destructive testing? Explain the benefits of NDT. (10 Marks)  
 b. What are the objectives of leak testing? Explain any one of the methods of detect flaws using this technique. (10 Marks)
- 2 a. What is magnetic particle inspection and explain the general procedures for magnetic particle inspection. (10 Marks)  
 b. Explain with neat sketch, how the following components are inspected by using magnetic particles inspection. (10 Marks)  
 i) Castings and forgings    ii) Oil well tubing    iii) Hollow cylinders.
- 3 a. Explain the different types of operating variables affecting performance in eddy current inspection. (10 Marks)  
 b. Explain how the following components are inspected by using eddy current inspection? (10 Marks)  
 i) Tubes and solid cylinder  
 ii) Welds and welded tubing and pipes  
 iii) Inspection of air craft structural and origin components.
- 4 a. Explain with neat sketch of microwave holography. (10 Marks)  
 b. State the applications and limitations of microwave inspection. (10 Marks)

**PART - B**

- 5 a. Explain with sketches the following (10 Marks)  
 i) A - scan system    ii) B - scan system    iii) C - scan system (10 Marks)  
 b. Explain the variables in ultrasonic inspection.
- 6 a. Explain with sketches the following (10 Marks)  
 i) Angle beam units    ii) Dual - element units  
 iii) Immersion type units    iv) Straight beam units. (10 Marks)  
 b. Explain different types of detection of flaws in ultrasonic inspection.
- 7 a. Explain the basic principle of radiographic inspection and also discuss its merits and de - merits. (10 Marks)  
 b. Explain with neat sketches applications of radiography. (10 Marks)
- 8 a. Explain with neat sketches (10 Marks)  
 i) holographic recording    ii) Holographic re-construction.  
 b. Write a short notes on : (10 Marks)  
 i) Inter ferometric Techniques of inspections  
 ii) holographic testing applications.

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