



USN

10AU761

Seventh Semester B.E. Degree Examination, June/July 2019

### Non – Destructive Testing

Time: 3 hrs.

Max. Marks: 100

**Note: Answer FIVE full questions, selecting atleast TWO questions from each part.**

#### PART – A

- 1 a. Explain the benefits of NDT. (04 Marks)  
b. What are the objectives of leak testing? Explain any one of methods to detect flaws using this technique. (10 Marks)  
c. Explain how visual inspection is helpful in detecting the fluence. (06 Marks)
- 2 a. Explain the general procedure for magnetic particle inspection. (10 Marks)  
b. Explain different methods of generating magnetic fields with suitable sketches. (10 Marks)
- 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.  
i) Tubes and solid cylinder  
ii) Welds and welded tubing and pipes. (10 Marks)
- 4 a. Explain with neat sketch of microwave holography. (10 Marks)  
b. State the applications and limitation of micro move inspection. (10 Marks)

#### PART – B

- 5 a. What are the major variables in ultrasonic inspection? Explain. (10 Marks)  
b. Explain with sketch the following :  
i) A – Scan system  
ii) B – scan system  
iii) C – scan system. (10 Marks)
- 6 a. With the aid of a neat sketches, explain the following as applied to ultrasonic inspection :  
i) Straight – beam units  
ii) Angle – beam units  
iii) Immersion type Search unit  
iv) Dual – element units (12 Marks)  
b. Mention the advantages, disadvantages and applications of ultrasonic inspection. (08 Marks)
- 7 a. Explain the basic principle of radiographic inspection and also discuss its metric and demerits. (10 Marks)  
b. Explain with neat sketches application of radiography. (10 Marks)
- 8 a. Explain with neat sketches :  
i) Holographic recording  
ii) Holographic re – construction. (10 Marks)  
b. What is optical-holography? Also state its advantages and limitations along with its applications. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and/or equations written eg. 42+8 = 50, will be treated as malpractice.