

# CBCS SCHEME

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18AU753

## Seventh Semester B.E. Degree Examination, Feb./Mar. 2022 Non-Destructive Testing

Time: 3 hrs.

Max. Marks: 100

*Note: Answer any FIVE full questions, choosing ONE full question from each module.*

### Module-1

- 1 a. With a neat sketch, explain construction and working of a Helium leak detector. (10 Marks)  
b. Explain with a neat sketch micro structural analysis by microscopy techniques. (10 Marks)

OR

- 2 a. What are the different methods used in penetrant testing? Explain any one method. (10 Marks)  
b. Explain the materials used in penetrant inspection and list the applications. (10 Marks)

### Module-2

- 3 a. List the different methods at magnetization in MPI and with a neat sketch explain any one. (10 Marks)  
b. List the advantages, limitations and applications of MPI. (10 Marks)

OR

- 4 a. Explain with a neat sketch X-ray radiography. (10 Marks)  
b. With a neat sketch discuss Gamma-Ray radiography. (10 Marks)

### Module-3

- 5 a. Explain with a neat sketch computed tomography. (10 Marks)  
b. Compare computed tomography with other NDE methods. Also list their applications. (10 Marks)

OR

- 6 a. Briefly explain thermal inspection with sketch. (10 Marks)  
b. Explain the equipment used in thermal inspection. List the application of thermal inspection. (10 Marks)

### Module-4

- 7 a. Explain with a neat sketch principle of optical holography. (10 Marks)  
b. Explain the acoustical holography and list applications. (10 Marks)

OR

- 8 a. Explain the various types of coils used in Eddy current inspection with neat sketches. (10 Marks)  
b. Explain with neat sketch: (i) Conductivity of the material (ii) Lift off factors (10 Marks)

### Module-5

- 9 a. Explain the major variables in ultrasonic inspection. (10 Marks)  
b. Mention the advantages, disadvantages and applications of ultrasonic inspection. (10 Marks)

OR

- 10 a. Briefly explain experimental test setup for Acoustic Emission Technique (AET). (10 Marks)  
b. Compare acoustic inspection methods with other inspection methods. Also list applications of AET. (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.