

# CBCS SCHEME

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18MA61

## Sixth Semester B.E. Degree Examination, July/August 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 the help of suitable examples, differentiate between destructive and non destructive testing techniques. (10 Marks)
- b. Explain visual inspection process. Explain any four optical aids used for visual inspection. (10 Marks)

OR

- 2 a. What is NDT? List the different NDT methods. Explain the purposes and selection of NDT method. (10 Marks)
- b. What are the characteristics, advantages, limitation and applications of visual inspection method? (10 Marks)

### Module-2

- 3 a. With a neat sketch, explain the steps involved in liquid penetrant test. (10 Marks)
- b. With a neat sketch, explain magnetic particle testing. (10 Marks)

OR

- 4 a. Discuss about the:
  - (i) Post emulsification method
  - (ii) Solvent removal method
  - (iii) Application of developer liquid penetrating testing (10 Marks)
- b. Discuss about longitudinal magnetization and circumferential magnetization in magnetic particle testing. (10 Marks)

### Module-3

- 5 a. With a neat sketch, explain Thermography testing. State their advantages, limitation. (10 Marks)
- b. With a neat sketch, explain Eddy current testing. State their advantages, limitations. (10 Marks)

OR

- 6 a. Explain evaluation procedure for (i) Eddy current testing (ii) Thermography testing (10 Marks)
- b. Differentiate between Thermography and Eddy current testing. (10 Marks)

### Module-4

- 7 a. With a neat sketch, explain ultrasonic inspection method. Mention its advantages and disadvantages. (10 Marks)
- b. Distinguish between A-scan, B-scan and C-scan presentation in ultrasonic testing. (10 Marks)

OR

- 8 a. Write notes on:  
(i) Ultrasonic transducer  
(ii) Couplant  
(iii) Amplifier used in ultrasonic testing (10 Marks)  
b. With a neat sketch, explain the working principle of Acoustic Emission Technique. Mention its advantages and disadvantages. (10 Marks)

**Module-5**

- 9 a. With a neat sketch, explain X-Ray radiography. Mention its advantages and disadvantages. (10 Marks)  
b. Explain briefly:  
(i) Film graininess  
(ii) Film contrast  
(iii) Film density in radiography testing (10 Marks)

OR

- 10 a. With a neat sketch, explain computed tomography. Mention its advantages and applications. (10 Marks)  
b. With a neat sketch, explain Xero-Radiography. Mention its advantages and applications. (10 Marks)

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