

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY GURAJADA VIZIANAGARAM
IV B. Tech I Semester Regular/Supplementary Examinations October 2025
NON DESTRUCTIVE EVALUATION
(MECH)

Time: 3 hours

Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks

UNIT-I

1. a) Explain the span of NDE activities in railways. [7M]
b) Discuss NDE techniques for Aircraft and Aerospace Industries. [7M]
(OR)
2. a) Explain the method of X-ray generation with neat sketch. [7M]
b) Explain safety aspects of industrial radiography. [7M]

UNIT-II

3. a) Discuss briefly various components of pulse-echo flaw detector in ultrasonic Equipment. [7M]
b) Explain mode conversion of Ultrasonic waves. [7M]
(OR)
4. a) Describe the principle of wave propagation in ultrasonic testing. [7M]
b) Discuss the working of piezoelectric transducers with neat sketch. [7M]

UNIT-III

5. a) Explain the principle and procedure of liquid penetrant testing. [7M]
b) Differentiate between dye penetrant testing and fluorescent penetrant testing? [7M]
(OR)
6. a) Explain the principle of eddy current test system with neat sketch. [7M]
b) Explain the effectiveness and limitations of eddy current testing. [7M]

UNIT-IV

7. a) Discuss the procedure of magnetic particle testing with neat sketch. [7M]
b) Describe the magnetization methods in detail. [7M]
(OR)
8. a) Explain the standardization and calibration in MPT. [7M]
b) Describe the demagnetization methods in detail. [7M]

UNIT-V

9. a) Discuss active and passive thermography methods. [7M]
b) Explain contact and non contact thermal inspection methods. [7M]
(OR)
10. a) Demonstrate lock in and pulse thermography methods. [7M]
b) Discuss the applications of infrared testing in aerospace industries. [7M]
