

**B.TECH**  
**(SEM VI) THEORY EXAMINATION 2022-23**  
**NON DESTRUCTIVE TESTING**

Time: 3 Hours

Total Marks: 100

**Note:** Attempt all Sections. If require any missing data; then choose suitably.

**SECTION A**

**1. Attempt all questions in brief. 2 x 10 = 20**

- (a) What do you meant by Non Destructive Testing?
- (b) List out any five defects inspected by Non Destructive Testing.
- (c) What are various penetrants inspection techniques?
- (d) What are the developers?
- (e) Define skin effect.
- (f) Explain Compton's effect.
- (g) Explain scattered and total radiation.
- (h) Explain attenuation of sound waves.
- (i) Explain Lenz's law.
- (j) Explain wave interference.

**SECTION B**

**2. Attempt any three of the following: 10x3=30**

- (a) Explain the various test stations used in penetrant test and its basic procedure.
- (b) Explain the scope of NDT and differentiate between destructive and Non-Destructive testing.
- (c) Explain various types of radiation and their basic properties.
- (d) Explain the working and construction of X-ray tube. Draw a labeled diagram of X-ray tube.
- (e) Discuss the various probes used in Eddy current testing and their configurations

**SECTION C**

**3. Attempt any one part of the following: 10x1=10**

- (a) Explain the various types of developers used in penetrant testing. What are the basic properties of a developer?
- (b) Explain the various methods of magnetization and scope of magnetic particle testing.

**4. Attempt any one part of the following: 10x1=10**

- (a) What are the flaws? Explain various flaws occur in welding and casting.
- (b) What the application of visual inspection test in detecting surface defects? Explain it's the advantages and limitations.

- 5. Attempt any *one* part of the following: 10x1=10**
- (a) Explain the X-ray film and accessories. What are the significance of each layer of X-ray film.
  - (b) Explain geometric principle of radiation. What are the factors effecting beam geometry.
- 6. Attempt any *one* part of the following: 10x1=10**
- (a) What are ultrasonic probes? Also explain various types of ultrasonic probes.
  - (b) Explain any two ultrasonic inspection techniques and their advantages.
- 7. Attempt any *one* part of the following: 10x1=10**
- (a) Explain data representation and three modes of data presentation.
  - (b) Explain working principle of eddy current testing. Explain the various factors effecting eddy current.

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