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B. TECH.
THEORY EXAMINATION (SEM-VIII) 2016-17
NON-DESTRUCTIVE TESTING

Time : 3 Hours

Max. Marks : 100

Note : Be precise in your answer. In case of numerical problem assume data wherever not provided.

SECTION – A

1. **Attempt all parts of the following question:** **10 x 2 = 20**
- (a) Define the term NDT.
 - (b) Enlist the equipments used in visual inspection..
 - (c) What do you mean by fluorescent dye?
 - (d) What are the advantages of magnetic particle inspection?
 - (e) What is emulsifier?
 - (f) What is piezoelectricity?
 - (g) What is acoustic emission?
 - (h) Explain the function of Transducers in USM.
 - (i) What is eddy current?
 - (j) Define the term “Dwell time” used in Liquid penetrant test.

SECTION – B

2. **Attempt any five of the following questions:** **5 x 10 = 50**
- (a) What are the properties the penetrants must have in order to work well? Classify different types of penetrants.
 - (b) What are the different sources of radiation used in radiographic inspection method?
 - (c) What are different methods to generate magnetic fields? Differentiate between ferro-magnetic & Non-ferromagnetic materials.
 - (d) How ultrasonic testing can help in medical diagnosis and inspecting welded joints?
 - (e) Explain the technique of excess removal of penetrant from the workpiece surface.
 - (f) Explain photo electric effect. Enumerate the limitations of radiographic inspection.
 - (g) With neat sketch explain the method of ultrasonic testing and write its applications.
 - (h) What is scattering factor? Describe the advantages of γ -ray radiography over X-ray radiography.

SECTION – C

- Attempt any two of the following questions:** **2 x 15 = 30**
- 3 With neat sketch explain the principle, equipment and methodology used in X-ray radiography test.
 - 4 With neat sketch explain the principle and working of eddy current inspection. Write five application of eddy current inspection.
 - 5 What are the steps followed when conducting magnetic particle inspection? Explain the importance of magnetic field direction in flaw detection.