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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-feromagnetic 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.