

(Following Paper ID and Roll No. to be filled in your Answer Books)

Paper ID : 140858

Roll No.

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**B.TECH.**

**Theory Examination (Semester-VIII) 2015-16**

**NON-DESTRUCTIVE TESTING**

*Time : 3 Hours*

*Max. Marks : 100*

**Section-A**

**Q1. Attempt all parts. All parts carry equal marks. Write answer of each part in short. (2×10=20)**

- (a) Differentiate between DT & NDT.
- (b) Enlist the different types of Penetrant.
- (c) What is Fluorescent Dye?
- (d) What do you mean by radiograph?
- (e) Differentiate between ferro-magnetic & Non-ferromagnetic materials.

- (f) What is scattering factor?
- (g) Explain Electromagnetic induction in brief.
- (h) Explain the function of Transducers in brief.
- (i) What is photoelectric effect?
- (j) What are different methods to generate magnetic Fields?

### **Section-B**

**Q2. Attempt any five questions from this section.**

**(10×5=50)**

- (a) With neat sketch explain the principle, equipment and methodology used in X- ray radiography test.
- (b) What are the advantages, disadvantages and applications of ultrasonic testing?
- (c) What is piezoelectricity? Explain the method of ultrasonic testing with neat sketch.
- (d) With neat sketch explain the principle and working of

eddy current inspection.

- (e) Explain about visual inspection method and optical holographic method.
- (f) Classify different types of penetrants used in Liquid penetrant test. Explain the technique of excess removal of penetrant from the workpiece surface.
- (g) What are the advantages, disadvantages and applications of Magnetic particle inspection?
- (h) Explain the following:
  - (i) Rayleigh's scattering
  - (ii) Compton's scattering

### Section-C

**Note: Attempt any two questions from this section.**

**(15×2=30)**

- Q3. What are the different sources of radiation used in radiographic inspection method? Describe the advantages of  $\gamma$ -ray radiography over X-ray radiography.
- Q4. Explain the basic processing steps of a liquid penetrant

(3)

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inspection? What are the properties the penetrants must have in order to work well?

- Q5. Explain the steps followed when conducting magnetic particle inspection? Explain the importance of magnetic field direction in flaw detection.