

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

PAPER ID : 140858

Roll No.

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B.Tech.

(SEM. VIII) THEORY EXAMINATION 2013-14

NON-DESTRUCTIVE TESTING

Time : 3 Hours

Total Marks : 100

Note :- (1) Attempt all questions.

(2) All questions carry equal marks.

1. Answer any **two** of the following : **(10×2=20)**

- (a) Define NDT and explain scope, advantages and explain differences between DT and NDT.
- (b) Explain visual inspection and write down different types of visual inspection ? Explain Ringing Chalk Test (oil whitening test) ?
- (c) Explain bond strength and types of defects.

2. Answer any **two** of the following : **(10×2=20)**

- (a) Explain principle of die penetrating inspection technique ? Write down equipments used in DPI.
- (b) Explain zygo test ? Explain scope, limitations and advantages.
- (c) What is magnetic hysteresis and hysteresis curve explain it ?

3. Answer any two of the following : (10×2=20)
- (a) Describe differences between X-ray and gamma ray. Explain the criteria to choose one of them in a particular use.
 - (b) Explain types of radiation and photo-electric effect. What is geometric unsharpness (U) if size of source 'S', object to film distance 'd' and source to film distance 'D'. Write down the relation between U, S, d, D .
 - (c) Explain precautions against radiation hazards. Explain case study of human body X-ray.
4. Answer any two of the following : (10×2=20)
- (a) Explain principle of Ultrasonic Testing technique in NDT. Explain CRO technique advantages and limitations.
 - (b) Write down the procedure of detection of defects by using UTM.
 - (c) Explain characteristics of ultrasonic beam ? If diameter of transducer is D and wavelength is λ and field length N then write down the relation between them.
5. Answer any two of the following : (10×2=20)
- (a) Write down the principle of Eddy Current Testing ? Explain the method of Eddy Current Inspection.
 - (b) Explain types of probes used in Eddy Current Testing ? What are the factors affecting probe selection ? What is fill factor ?
 - (c) Explain case studies in Eddy Current Inspection; scope and limitations of Eddy Current Inspection.