

Code: 9D15108

M.Tech II Semester Supplementary Examinations February 2018

**NON-DESTRUCTIVE EVALUATION**

(Production Engineering &amp; Engineering Design)

(For students admitted in 2013, 2014, 2015 &amp; 2016 only)

Time: 3 hours

Max. Marks: 60

Answer any FIVE questions  
All questions carry equal marks

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- 1 (a) Explain briefly the principle of magnetic particle inspection.  
(b) What are sensing elements as applied to eddy current test system and with sketches explain the encircling and surface testing coils?
- 2 (a) Briefly explain the principle of production of X-rays and explain how the cathode electron loses its energy at the anode in production of X-rays.  
(b) Enumerate the factors to be considered in the selection of X-ray unit.
- 3 (a) Explain the film graininess signal to noise ratio in radiographs.  
(b) Explain briefly the sensitometric characteristics of X-ray films.
- 4 Explain the different types of search units that are used in ultrasonic inspection with sketches.
- 5 Explain the following with neat sketches:  
(a) Acoustical holography.  
(b) Optical holography.
- 6 What are the different types of ultrasonic scanning system? Explain the C-scan display system and functions of various controls.
- 7 Discuss clearly the non-destructive testing in flow analysis of pressure vessels with appropriate sketches.
- 8 Discuss the applications of NDT as applied to castings with relevant sketches.

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