

Code No: RT42034A

**R13**

**Set No. 1**

**IV B.Tech II Semester Supplementary Examinations, July/August- 2017**

**NON DESTRUCTIVE EVALUATION**

(Mechanical Engineering)

**Time: 3 hours**

**Max. Marks: 70**

*Question paper consists of Part-A and Part-B*

*Answer ALL sub questions from Part-A*

*Answer any THREE questions from Part-B*

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**PART-A (22 Marks)**

1. a) Write about the applications, limitations of X and Gamma Rays? [4]
- b) Explain about reflection? [3]
- c) Write about limitations of Liquid Penetrant Test? [4]
- d) Write about Magnetic Materials? [4]
- e) Explain about principle of eddy-current testing? [3]
- f) Write about the importance of NDE in Coal Mining Industry? [4]

**PART-B (3x16 = 48 Marks)**

2. a) Explain about sources of X and Gamma Rays and their interaction with matter in detail? [10]
- b) List out various safety aspects that are followed in industrial radiography? [6]
3. a) Explain about the guidelines for Acceptance, Rejection - Effectiveness of Ultrasonic Testing? [10]
- b) Write short notes on piezoelectric effect. [6]
4. Explain about the principle and testing procedure of liquid penetrant test with neat diagrams? [16]
5. a) Explain about effective Applications and Limitations of the Magnetic Particle Test? [10]
- b) How magnetization and demagnetization takes place in magnetic materials? [6]
6. a) Explain the working principle of eddy current test system with neat sketch? [8]
- b) Discuss the applications of eddy current testing. [8]
7. Explain about the applications of NDE in pressure vessels, castings and welded constructions? [16]

