

Code No: G1509/R13

M. Tech. I Semester Supplementary Examinations, January-2017

NON - DESTRUCTIVE EVALUATION

(Common to MD and MED)

Time: 3 hours

Max. Marks: 60

Answer any FIVE Questions
All Questions Carry Equal Marks

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| 1. a | What are the requirements of dye penetrant testing materials? | 6 |
| b | A cross country crude oil pipe line is to be tested for leakage. What NDT technique is to be used and why? Explain the principle of the technique and the procedure. | 6 |
| 2. a | Discuss Magnetic Particle Testing with reference to
i) Steps of Operation
ii) Principle
iii) Method of Magnetization
iv) Limitations | 6 |
| b | Give the names of a few visual aids and their uses in NDT. | 6 |
| 3. a | What are the types of radioactive materials to be used for the production of Gamma rays? | 6 |
| b | With a neat sketch, discuss the working procedure of X-ray image intensifier. | 6 |
| 4. | Write a short note on the following :
a) Field sensitive probes.
b) Measurement of metal properties. | 12 |
| 5. a | Explain when and how circular and longitudinal magnetization methods are used? | 6 |
| b | Explain the equipment, process and applications of Magnaflux inspection method? | 6 |
| 6. | What are the advantages of using ultrasonic inspection as compared to the X- ray radiography? Explain two ultrasonic inspection techniques for detection of sub layer cracks in the materials? | 12 |
| 7. a | With a neat diagram, discuss the Nonlinear Harmonic technique in detail. | 6 |
| b | Write short notes on Sources of acoustic emission. | 6 |
| 8. a | Explain surface preparation prior to thermal inspection. | 6 |
| b | What are different types of acoustic emission sensors? Explain any two sensors with their relative merits and demerits. | 6 |
