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INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

B.Tech VI Semester End Examinations (Regular) - May, 2019

Regulation: IARE – R16

NON DESTRUCTIVE TESTING

Time: 3 Hours

(ME)

Max Marks: 70

Answer ONE Question from each Unit

All Questions Carry Equal Marks

All parts of the question must be answered in one place only

UNIT – I

1. (a) Compare and contrast between LPT and MPT. List the different optical aids used in visual inspection. [7M]
- (b) Write about examination, interpretation and evaluation process in liquid penetrant testing. [7M]
2. (a) Explain the following
 - (i) Application of Visual inspection
 - (ii) Advantage and disadvantage of Visual inspection [7M]
- (b) Compare and contrast the principles, characteristics detected, advantages, limitations applications of visual inspection and liquid penetrant testing. [7M]

UNIT – II

3. (a) Give the operating range of ultrasonic test waves and explain the methodology. [7M]
- (b) Elaborate any two ultrasonic inspection techniques for detection of sub layer cracks with illustration. [7M]
4. (a) Explain various modes of display in ultrasonic testing. [7M]
- (b) Explain the principle of time of flight diffraction (TOFD) technique of ultrasonic testing. [7M]

UNIT – III

5. (a) What is the working principle of X-ray radiography? What are the advantages and limitations? [7M]
- (b) Explain about screens particularly on metal foil screens, fluorescent intensifying screens used in radiographic testing. [7M]
6. (a) List the precautions necessary to enhance image quality and safety during the entire process of Radiography testing. [7M]
- (b) Compare the advanced radiography technique Xerography to X-ray radiography. [7M]

UNIT – IV

7. (a) Explain with neat sketch about the exposure charts in radiography testing technique. [7M]
- (b) Write the principle of phase array. Mention the limitations and applications of it. [7M]

8. (a) Illustrate with neat sketch about the fluoroscopy radiographic system. [7M]
(b) List and explain special radiographic techniques in detail. [7M]

UNIT – V

9. (a) Explain the modes acoustic emission testing the transient (burst) and continuous signals. [7M]
(b) Explain the major components are used in computed tomography and give some examples of computed tomography (CT) of Non Destructive testing? [7M]
10. (a) What is leak testing? Mention the principle and applications of leak testing. [7M]
(b) Explain the factors influencing acoustic wave propagation and data acquisition in acoustic emission testing. [7M]

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