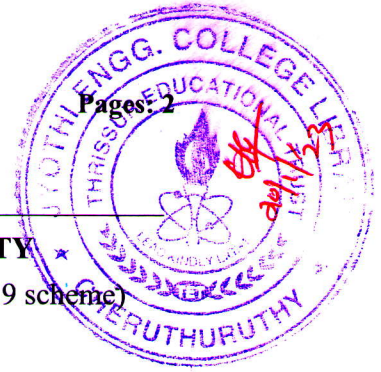


B

1000MET413122201



Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Seventh Semester B.Tech Degree Examination December 2022 (2019 scheme)

Course Code: MET413

Course Name: ADVANCED METHODS IN NONDESTRUCTIVE TESTING

Max. Marks: 100

Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks.

Marks

- | | | |
|----|---|-----|
| 1 | Explain about different types of visual inspection | (3) |
| 2 | List the advantages and disadvantages of magnetic particle inspection technique | (3) |
| 3 | Explain about ultrasonic guided waves | (3) |
| 4 | What is Snell's law of critical angle? | (3) |
| 5 | What are the different types of screens used in radiography inspection | (3) |
| 6 | Explain about different types of radiation detectors used during radiography inspection | (3) |
| 7 | Explain the significance of wedges used during phased array inspection | (3) |
| 8 | Write short notes about beam steering of ultrasound waves | (3) |
| 9 | Explain the significance of heat sensitive paints during NDT | (3) |
| 10 | Write short notes about the significance of thermo mechanical behaviour of materials during thermo graphic evaluation | (3) |

PART B

Answer any one full question from each module, each carries 14 marks.

Module I

- 11 a) With neat sketches explain the working of liquid penetration inspection technique. (8)
- b) With the help of simple figure, explain the standard depth of penetration during eddy current testing (6)

OR

- 12 a) With neat figures, explain any two types of magnetisation techniques used during magnetic particle inspection (8)
- b) Explain the process of coating thickness measurement by employing eddy current testing technique (6)

Module II

- 13 a) With neat sketches, explain the different types of ultra-sonic testing techniques (8)
b) Explain the working of laser shearography (6)

OR

- 14 a) Differentiate between Fresnel and Fraunhofer effects (8)
b) With the help of a neat diagram, detail about the generation of ultrasonic waves (6)

Module III

- 15 a) Explain about different types of inspection techniques employed during radiography testing (8)
b) What are the parameters based on which the radiography image quality is defined (6)

OR

- 16 a) What is real time radiography? List the merits of the process (8)
b) With neat sketches, differentiate between neutron radiography and motion radiography (6)

Module IV

- 17 a) Explain the working of phased array inspection technique (8)
b) Explain the theory and significance of time-of-flight diffraction (6)

OR

- 18 a) Explain the synthetic aperture focusing technique (8)
b) What is the significance of probe angle during phased array inspection (6)

Module V

- 19 a) With diagram, explain acoustic emission testing technique (8)
b) Explain any two types of leak testing technique (6)

OR

- 20 a) Explain the different types of thermo graphic NDT techniques (8)
b) Differentiate between digital radiography and computed tomography (6)
