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Pages: 2

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
Sixth Semester B.Tech Degree Examination June 2022 (2019 Scheme)



Course Code: MET312

Course Name: NON DESTRUCTIVE TESTING

Max. Marks: 100

Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks.

- | | | Marks |
|----|--|-------|
| 1 | Define Non-destructive testing? | (3) |
| 2 | Explain Visual Perception related with NDT? | (3) |
| 3 | List the materials/consumables required for Liquid Penetrant Inspection? | (3) |
| 4 | What are the properties of a good developer? | (3) |
| 5 | How do we Classify indications in MPI? | (3) |
| 6 | What is residual magnetism? Narrate its impact on MPI. | (3) |
| 7 | Explain the significance of the use of couplant in UT with examples | (3) |
| 8 | What is Snell's Law and its significance in Ultrasonic Testing? | (3) |
| 9 | What are the electromagnetic sources used in RT? | (3) |
| 10 | List the advantages of Eddy current testing? | (3) |

PART B

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

Module I

- 11 a) Compare Destructive and Non-destructive Test. (6)
b) Explain visual inspection process. Also explain about the different types of optical aids used in the process. (8)

OR

- 12 a) Explain computer enhanced visual system for Visual inspection (6)
b) Explain In detail the material attributes and environmental factors that affects Visual inspection. (8)

Module II

- 13 a) Explain the working principle of liquid penetrant inspection (LPI). With neat sketches explain the various steps involved in performing LPI. (8)
b) What are the properties of a good penetrant? Explain in detail? (6)

OR

- 14 a) What are the types of developers? Explain in detail? (8)
b) What are the points to be remembered while interpreting the results in Liquid penetrant inspection? (6)

Module III

- 15 a) What are the magnetization techniques used in MPI? Explain any two in detail with figures? (8)
b) Explain the principle of MPI with neat sketch? (6)

OR

- 16 a) List the advantages and limitation of magnetic particle inspection? (6)
b) Explain in detail, the continuous testing of MPI and residual technique of MPI. (8)

Module IV

- 17 a) Explain in detail with figures, the transmission method and pulse echo method used in Ultrasonic testing? (8)
b) What are the modes of display used in UT? Explain with figure? (6)

OR

- 18 a) Explain straight beam testing technique and angle beam testing technique with neat sketch? (8)
b) Differentiate between contact testing technique and immersion technique used in UT with neat sketches? (6)

Module V

- 19 a) Explain with figure the inspection techniques used in RT? (8)
b) Explain the principle of Radiographic testing with figure? (6)

OR

- 20 a) With neat sketch explain the principle of Eddy current Testing? (8)
b) Explain the following terms (6)
I. Lift off effect
II. Edge effect
III. End effect
