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1200MET312052301



Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S6 (S, FE) / S4 (PT) (S) Examination January 2024 (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 | List any three mechanical and optical aids used for visual inspection. | (3) |
| 2 | Explain the necessity of NDT (6 points). | (3) |
| 3 | Enumerate the reasons for false indications in Liquid Penetrant Inspection. | (3) |
| 4 | Mention the desirable characteristics of a good penetrant in Liquid Penetrant Inspection (LPI). | (3) |
| 5 | Why it is necessary to demagnetize the workpiece before and after the magnetic particle inspection? | (3) |
| 6 | Explain continuous and residual technique of MPI. | (3) |
| 7 | List the advantages and limitations of UT. | (3) |
| 8 | Why is it essential to use couplant for ultrasonic testing? | (3) |
| 9 | List the properties of X-Rays. | (3) |
| 10 | Explain the relation between frequency and depth of penetration in ECT | (3) |

PART B

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

Module I

- 11 a) Compare destructive and non-destructive testing methods with examples. (7)
b) Explain in detail the special lighting arrangements in visual inspection. (7)

OR

- 12 a) Explain in detail various factors affecting visual inspection method. (7)
b) Explain computer enhanced visual inspection system with a neat diagram. (7)

Module II

- 13 a) Explain the steps in penetrant testing with neat sketches (10)
b) What is the principle of LPI? Explain the types of penetrant used in LPT? (4)

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- 14 a) Explain the different penetrant removal techniques used for dye penetrant inspection. (10)
- b) What are the different types of developers used in LPI? (4)

Module III

- 15 a) Explain the different magnetization techniques used for Magnetic Particle Inspection. (10)
- b) Explain the principle of MPI with a neat sketch. (4)

OR

- 16 a) Explain the step by step procedure for Magnetic Particle Inspection. (10)
- b) With the help of neat sketches, explain any two checking devices used for Magnetic Particle Inspection. (4)

Module IV

- 17 a) Explain any three techniques used in UT with neat sketches. (9)
- b) Explain in detail the principle and working of TOFD. (5)

OR

- 18 a) Explain the different data presentation modes in Ultrasonic Testing. (9)
- b) Discuss any two transducers used in Ultrasonic Testing. (5)

Module V

- 19 a) Explain various inspection techniques used in Radiographic Testing (9)
- b) Explain the different stages of film processing in Radiographic Testing (5)

OR

- 20 a) Explain the principle and working of Real Time Radiography with a neat sketch (8)
- b) Explain absolute and differential probes used in ECT (6)
