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Reg No.:_____ Name:_____

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

FIFTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2017

**Course Code: ME367**

**Course Name: NON-DESTRUCTIVE TESTING**

Max. Marks: 100 Duration: 3 Hours

**PART A**

***Answer any three full questions, each carries 10 marks.*** Marks

| | | | |
|---|---|---|---|
| 1 | a) | Differentiate between Destructive and Non- Destructive testing. | (4) |
| | b) | What are the different visual aids used in Visual inspection? Explain any 3 in detail. | (6) |
| 2 | a) | How visual inspection helps in Non- Destructive Testing? | (2) |
| | b) | Explain computer enhanced visual system for Visual inspection. | (6) |
| | c) | Explain the future scope of NDT methods. | (2) |
| 3 | a) | Explain the principle of Liquid Penetrant Inspection. | (4) |
| | b) | Explain various methods of Liquid Penetrant Inspection. | (6) |
| 4 | a) | What are the properties required for a good penetrant? | (4) |
| | b) | With neat sketches explain the steps involved in conducting the LPI. | (4) |
| | c) | What are the limitations of LPI? | (2) |

**PART B**

***Answer any three full questions, each carries 10 marks.***

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|---|---|---|---|
| 5 | a) | With neat sketch explain any four magnetization techniques used in Magnetic Particle Inspection. | (6) |
| | b) | What is the use of field indicators in MPI? Explain any one type of field indicator used in MPI. | (4) |
| 6 | a) | Explain procedure used for testing a component using Magnetic particle inspection (MPI). | (6) |
| | b) | What is sensitivity in MPI? | (4) |
| 7 | a) | What is the principle of Ultrasonic Testing (UT)? | (4) |
| | b) | With sketches, explain different modes of display in Ultrasonic Testing. | (6) |
| 8 | a) | Explain TOFD in ultrasonic testing. | (4) |
| | b) | Explain straight beam and angle beam testing techniques used in UT. | (6) |

**PART C**

***Answer any four full questions, each carries 10 marks.***

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|---|---|---|---|
| 9 | a) | What is real time radiography? What are the advantages and disadvantages of real time radiography? | (5) |
| | b) | Explain the production of X- Ray. | (5) |
| 10 | a) | Explain SWSI, DWSI and DWDI inspection techniques in radiographic testing. | (8) |
| | b) | What are the properties of X- and Gamma Rays. | (2) |
| 11 | a) | How the quality of a good radiograph is accessed. | (3) |
| | b) | Explain any two types of screens used in radiographic testing. | (3) |
| | c) | What are the safety precautions to be taken during Radiographic testing? | (4) |
| 12 | a) | What is the principle of Eddy current testing? | (5) |
| | b) | What is sensitivity in Eddy current Testing? | (5) |
| 13 | a) | Define ‘lift off effect’, ‘edge effect’ and ‘end effect’ in ECT | (5) |
| | b) | Explain constant current drive and scanning probe ECT techniques. | (5) |
| 14 | a) | Explain any three applications of Eddy current testing. | (6) |
| | b) | What are the advantages and limitations of ECT? | (4) |

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