

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

Fifth Semester B.Tech Degree Regular and Supplementary Examination December 2020

**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) How Non-destructive test differs from Destructive test?                      | (6) |
|   | b) Explain the Material attributes that effects visual testing?                 | (4) |
| 2 | a) Classify and explain the Light sources used in Visual inspection?            | (5) |
|   | b) Explain computer enhanced visual system with suitable diagram?               | (5) |
| 3 | a) Explain the procedure for liquid penetrant inspection with suitable diagram? | (6) |
|   | b) Classify and explain Developers?   | (4) |
| 4 | a) What are the safety precautions required in Liquid Penetrant Inspection?     | (5) |
|   | b) List any five advantages and limitations of LPI?                             | (5) |

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

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|---|--|------|
| 5 | a) Explain the principle of MPI with neat sketch?  | (5)  |
|   | b) List the advantages and limitations of MPI?   | (5)  |
| 6 | a) What are the magnetization techniques used in MPI? Explain in detail with figures?                        | (10) |
| 7 | a) Explain in detail with figures, the transmission method and pulse echo method used in Ultrasonic testing? | (10) |
| 8 | a) What are the modes of display used in UT? Explain with figure?  | (6)  |
|   | b) Explain the significance of the use of couplant in UT with examples?                                      | (4)  |

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

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|----|---|------|
| 9  | a) Explain the principle of Radiographic testing with figure? | (6)  |
|    | b) What are the electromagnetic sources used in RT?           | (4)  |
| 10 | a) Explain with figure the inspection techniques used in RT?  | (10) |

- 11 a) Explain the working principle of Real time radiography with figure (5)  
b) Explain the steps involved in film processing in RT? (5)
- 12 a) With neat sketch explain the principle of Eddy current Testing? (5)  
b) Explain how thickness is measured using Eddy current testing? (5)
- 13 a) Explain the following terms (6)  
I. Lift off effect  
II. Edge effect  
III. End effect  
b) Correlate Frequency and depth of penetration in ECT? (4)
- 14 a) Explain various applications of Eddy current testing? (6)  
b) List the advantages of Eddy current testing? (4)

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