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

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

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Sixth Semester B.Tech Degree Supplementary Examination May 2023 (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 the advantage of Visual Inspection?  | (3) |
| 3  | What is the sequence of operation of Liquid Penetrant Testing?                       | (3) |
| 4  | Explain the properties of liquid penetrant?  | (3) |
| 5  | List down the procedure for a Magnetic Particle Inspection?                          | (3) |
| 6  | Explain the application of Magnetic Particle Inspection?                             | (3) |
| 7  | Describe the basic principle for Ultrasonic Testing?                                 | (3) |
| 8  | Explain contact testing and immersion testing in Ultrasonic Testing?                 | (3) |
| 9  | Define the terms Radiation Energy and intensity.                                     | (3) |
| 10 | Explain the effect of change of impedance on instrumentation in Eddy current testing | (3) |

**PART B**

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

**Module I**

- |    |   |     |
|----|---|-----|
| 11 | a) Differentiate between DT and NDT?                                | (7) |
|    | b) With the help of neat sketch, explain fibro scope and Boroscope. | (7) |

**OR**

- |    |   |     |
|----|---|-----|
| 12 | a) List the application and limitations of visual inspection technique in NDT.        | (7) |
|    | b) With the help of neat diagram, explain computer enhanced visual inspection system. | (7) |

**Module II**

- |    |   |     |
|----|---|-----|
| 13 | a) Explain the different types of developers and how it is being applied? | (7) |
|    | b) Explain the properties for a good penetrant?                           | (7) |

**OR**

- 14 a) With the help of neat diagram, explain the various steps involved in LPI. (7)  
b) What are the methods used to remove excess penetrants during LPI. (7)

**Module III**

- 15 a) Explain the hysteresis loop with neat sketch? (7)  
b) With the help of neat sketches, explain about any four types of magnetization techniques used in magnetic particle inspection. (7)

**OR**

- 16 a) What is continuous testing and residual technique of MPI. (7)  
b) With the help of neat sketches, explain how the longitudinal and circular magnetic field identify the cracks in MPI. (7)

**Module IV**

- 17 a) What are the different types of probes used in ultrasonic testing? (7)  
b) Explain the advantage and application of Ultrasonic Testing? (7)

**OR**

- 18 a) What are the different wave forms used in ultrasonic testing? (7)  
b) Explain through transmission technique and pulse echo testing technique? (7)

**Module V**

- 19 a) Explain the principle, application and disadvantage of Radiographic testing? (7)  
b) With neat sketches, explain about the different inspection techniques in Radiography testing. (7)

**OR**

- 20 a) Explain about various steps involved in film processing in Radiography? (7)  
b) Explain the eddy current testing technique in detail. (7)

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