

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
FIFTH SEMESTER B.TECH DEGREE EXAMINATION, APRIL 2018

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

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| 1 | With the help of suitable examples, differentiate between destructive and non-destructive testing techniques. List the advantages and disadvantages also. | (10) |
| 2 | a) Explain visual inspection process. Also explain about the different types of optical aids used in the process. | (6) |
| | b) With the help of a neat diagram, explain computer enhanced visual inspection system. | (4) |
| 3 | Explain the working principle of liquid penetrant inspection (LPI). With neat sketches explain the various steps involved in performing LPI. | (10) |
| 4 | a) List the desirable properties required for a good penetrant used in LPI. | (4) |
| | b) Explain about the advantages and disadvantages of LPI. | (3) |
| | c) Write short notes about various reasons for false indications during LPI. | (3) |

PART B

Answer any three full questions, each carries 10 marks

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| 5 | With the help of neat sketches explain about any four types of magnetisation techniques used in magnetic particle inspection (MPI). | (10) |
| 6 | a) Differentiate between direct and indirect method of magnetisation. Write the advantages and disadvantages of both methods. | (6) |
| | b) Explain about any four checking devices used in MPI. | (4) |
| 7 | a) With the help of neat figures, differentiate between through transmission technique and pulse echo testing techniques used in ultrasonic testing. | (6) |
| | b) Explain about the working of ultrasonic transducer. Include necessary figures. | (4) |
| 8 | a) With neat sketches explain the following:
i) A-Scan ii) B-Scan iii) C-Scan | (6) |
| | b) Explain time of flight diffraction in detail. | (4) |

PART C

Answer any four full questions, each carries 10 marks

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| 9 | With neat sketches explain about the different inspection techniques in radiography testing (RT). | (10) |
| 10 | a) Explain about real time radiography. | (4) |
| | b) Explain about different types of screens used in RT. Mention the advantages also. | (6) |
| 11 | a) Explain about various steps involved in film processing in RT. | (5) |
| | b) Write short notes about various safety aspects required in RT. | (5) |
| 12 | Explain about eddy current testing (ECT) technique in detail. List the advantages and disadvantages of the process. Include necessary figures. | (10) |
| 13 | a) Explain the following terms associated with ECT:
i) Lift off effect ii) Edge effect iii) End effect | (6) |
| | b) Write short notes about the standard depth of penetration in ECT. | (4) |
| 14 | a) Correlate frequency and depth of penetration in ECT. | (4) |
| | b) Explain the various applications of ECT. | (6) |
