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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

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

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: (6)
i) A–Scan ii) B–Scan iii) C-Scan

b) Explain time of flight diffraction in detail. (4)

PART C

Answer any four full questions, each carries 10 marks

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: (6)
i) Lift off effect ii) Edge effect iii) End effect

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)

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