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P.E.S. College of Engineering, Mandya - 571 401
(An Autonomous Institution affiliated to VTU, Belagavi)
Seventh Semester, B.E. - Mechanical Engineering
Semester End Examination; Jan. / Feb. - 2021
Non-Destructive Testing

Time: 3 hrs — Max. Marks: 100

Note: Answer **FIVE** full questions, selecting **ONE** full question from each unit.

UNIT - I

1 a.	Compare the Destructive testing methods and Non-destructive testing methods with respect to its advantages and disadvantages and limitation.	8
b.	Discuss about the various optical aid used for visual inspection techniques.	12
2 a.	With neat sketch, explain the procedure for penetrant testing.	10
b.	Explain the Post emulsifiable penetrant method in LPT using process flow diagram.	10

UNIT - II

3 a.	Discuss about any four various ways of magnetizing the components for MPT.	12
b.	Explain the properties of X-rays and Gamma rays.	8
4 a.	Write limitations of magnetic particle inspection.	8
b.	With neat sketch, explain the basic principle of radiographic examination.	12

UNIT - III

5 a.	With neat sketch, explain the principle of optical holography.	10
b.	Explain the principle and procedure of ECI.	10
6 a.	With block diagram, explin the eddy current test instrument.	8
b.	Define the following and mention their significance in ECI: i) Lift off factor ii) Skin effect iii) Coil impedance iv) Edge effects	12

UNIT - IV

7 a.	Write the advantages and applications of the Ultrasonic inspection.	10
b.	Explain the working principle of computed tomography techniques.	10
8 a.	With block diagram, explain the pulse-echo flaw detector.	10
b.	Write the advantages and application of the computed tomography inspection.	10

UNIT - V

9 a.	With block diagram, explain the typical AET system.	10
b.	With schematic diagram, discuss the AE signal parameter.	10
10 a.	Distinguish between thermocouple, thermopiles and thermistor.	8
b.	Explain digital image enhancement system technique and their application.	12

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