U.S.N

P.E.S. College of Engineering, Mandya - 571 401
(An Autonomous Institution affiliated to VTU, Belgaum)
Seventh Semester, B.E. - Mechanical Engineering
Semester End Examination; Dec - 2016/Jan - 2017
Non Destructive Testing

Time: 3 hrs   Max. Marks: 100

Note: i) Answer **FIVE** full questions, selecting **ONE** full question from each unit.
       ii) Assume suitably missing data, if any.

UNIT - I

1 a.	Discuss the advantages and area of applications of NDT methods.	10
b.	Explain with neat sketch, working of flexible Bore scope.	10
2 a.	Define Flaw. Explain different types of Flaws.	6
b.	With a neat sketch, explain liquid penetrant test.	10
c.	List out the advantages of fluid penetrant test.	4

UNIT - II

3 a.	Explain working principle of Real Time Radiography.	10
b.	Briefly explain magnetic particles and suspending liquids used in magnetic inspection.	10
4 a.	With a neat sketch, explain the steps involved in magnetic particle inspection.	10
b.	Discuss the following with respect to Radiography : (i) X ray-sources (ii) Radiation hazard.	10

UNIT - III

5 a.	Explain different types of Inspection coils used in Eddy current inspection method.	12
b.	With a neat sketch, explain the method of Holographic Re-construction.	8
6 a.	Discuss the Interferometric techniques used in holography.	10
b.	With a neat sketch, explain the principle and procedure of Eddy current inspection.	10

UNIT - IV

7 a.	Explain working principle of 'A-scan setup' pulse-echo ultrasonic inspection.	10
b.	List out the advantages, limitations and applications of computed Tomography Inspection.	10
8 a.	With a neat sketch, explain the working principle of computed Tomography.	10
b.	List out the advantages, limitations and applications of ultrasonic inspection.	10

UNIT - V

9 a.	With a neat sketch, explain the basic principle of acoustic emission inspection. Mention the advantages and disadvantages.	10
b.	Write a short note on contact and non-contact temperature sensors.	10
10a.	Explain any two types of Thermal Inspection methods.	10
b.	Explain digital image enhancement system.	6
c.	Mention advantages and limitations of image processing.	4

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