

Reg. No.

Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)



III SEMESTER M.TECH

END SEMESTER EXAMINATIONS, MAY /JUNE 2016

SUBJECT: NON-DESTRUCTIVE TESTING OF MATERIALS [CIE 556]

OPEN ELECTIVE

REVISED CREDIT SYSTEM

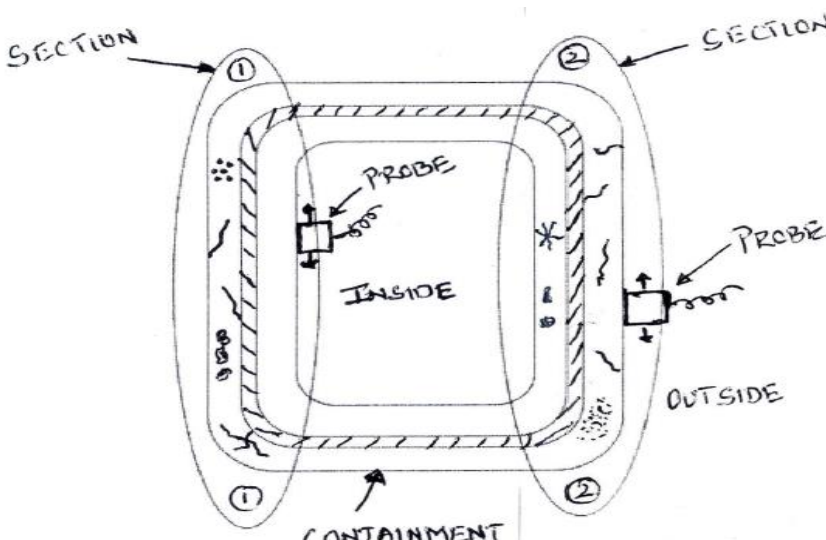
Time: 3 Hours

17-05-2016

MAX. MARKS: 50

Instructions to Candidates:

- ❖ Answer any **FIVE FULL** questions.
- ❖ Missing data may be suitably assumed

1A.	Define Destructive and Non-destructive testing (NDT). Mention the merits and demerits of NDT.	5marks
1B.	What is Magnetic Particle inspection (MPI) and Liquid Penetrant Inspection (LPI)? Compare MPI and LPI.	5marks
2A.	<p>A metal containment used to store fluid has various flaws in it at different location as indicated in fig. given below. The containment was tested using Ultrasound inside-out at location 1 and outside-in at location 2. Discuss and interpret the results.</p> 	6marks
2B.	Mention the advantage of Ultrasound NDT	4marks

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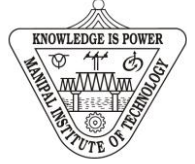
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3A.	LPI is not suitable for testing porous and rough textured materials explain	3marks
3B.	Mention the advantage and disadvantages of Acoustic Emission(AE) testing	3marks
3C.	Define AE classical parameters, Kaiser effect and Facility ratio.	4marks
4A.	What is Eddy Current, Magnetic Flux Leakage and Magneto- elastic techniques of NDT? Compare all the three testing methods	6marks
4B.	With a neat diagram explain briefly the hysteresis curve and its significance.	4marks
5A.	Compare Radiography NDT and Electromagnetic NDT.	5marks
5B.	Discuss the application of Radiography with an example	5marks
6A.	What is a leak and leakage? Mention the objective and significance of Leak detection testing.	5marks
6B.	Briefly explain Dye Penetrant and Bubble Leak testing	5marks