MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
(A constituent institution of MAHE, Manipal)

II SEMESTER M.TECH. (CIVIL ENGINEERING)
END SEMESTER EXAMINATIONS, APRIL\MAY 2018
SUBJECT: NON-DESTRUCIVE TESTING OF MATERIALS [CIE 5282]
REVISED CREDIT SYSTEM
(30/ 04/ 2018)
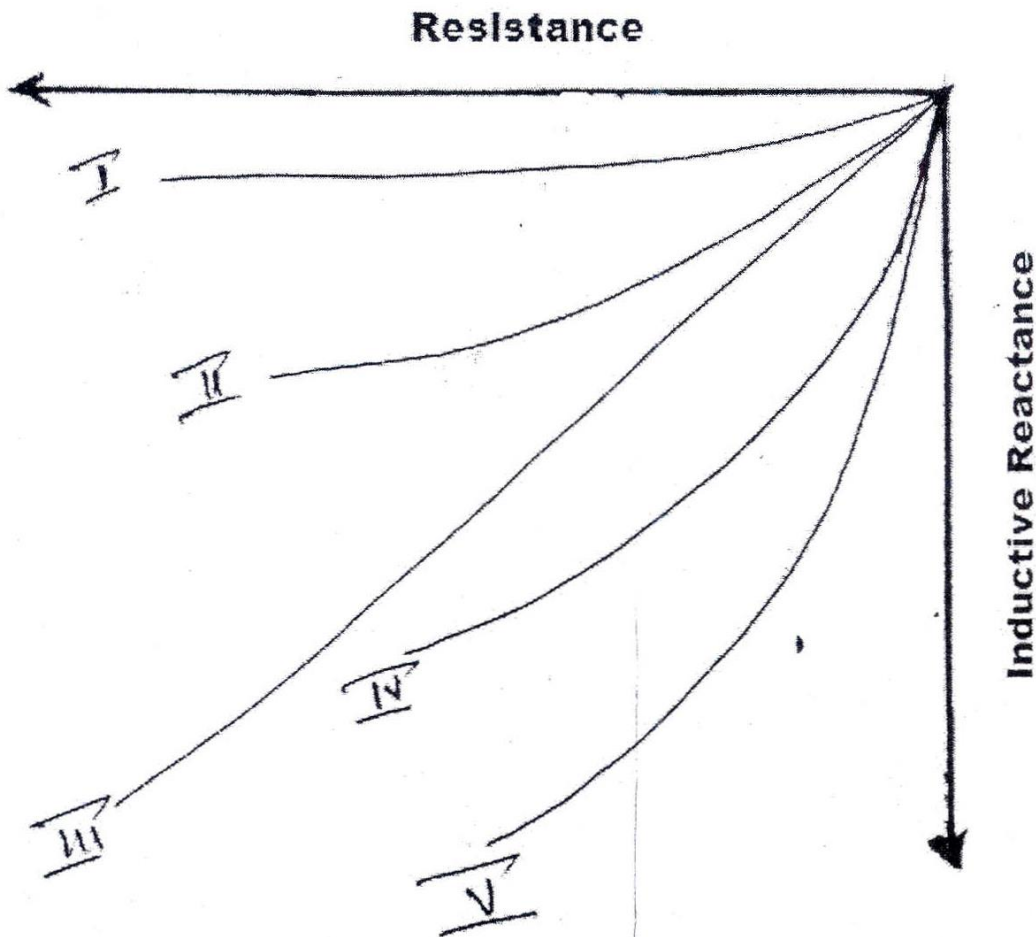
Time: 3 Hours   MAX. MARKS: 50

Instructions to Candidates:

❖ Answer ALL the questions.
❖ Missing data may be suitably assumed.

Q.No		Marks
1A.	Mention the classifications of NOT. Discuss the advantages and disadvantages 5 of each methods	5
1B.	Define and mention the usefulness of AE parameters: Hit, Count, Amplitude, 5 Duration and Rise time	5
2A.	Analyse and comment on the graph shown below	5
2B.	Explain the behaviour of ultrasound wave propagation in a composite medium of different densities.	5
3A.	In an ultrasound inspection of a material, the :angle of incidence and the angle of refraction of ultrasound wave are found to be 60° and 50° respectively. The velocity of incident wave is 3000m/sec. if the transmission coefficient is 50% and density of 1st medium is 3000 kg/m^3 then, determine, the velocity of ultrasound wave in 2nd medium, density of 2nd medium and	5

	Elasticity modulus' of both media. Assume Poisson's ratio of both media as 0.30.	
4A.	Define depth of penetration and skin effect. Discuss the effect of test frequency and test object on Eddy Current Inspection technique.	**5**
4B.	Comment on the graph shown below 	**5**
5A.	Explain the factors effecting the selection of magnetizing method.	**5**
5B.	Explain the basic principle of Radiographic method used in inspection of defect. Mention the advantages and limitations of Radiographic method.	**5**