



MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

V SEMESTER B.TECH. END SEMESTER EXAMINATIONS

NOVEMBER 2017

SUBJECT: NON DESTRUCTIVE TESTING OF MATERIALS

[CIE 4023]

Time of Exam: **3HRS** Max. Marks: **50**

Instructions to Candidates:

- ❖ Answer ALL the questions & missing data may be suitable assumed

1a.	Compare the significance of destructive and non destructive testing evaluation techniques	3
1b.	Explain the significance of document check in Visual Inspection of a Damaged bridge	3
1c.	Explain the common Damages that occur in a concrete structures.	4
2a.	What are effects of corrosion of reinforcement on RC Structures	4
2b.	Explain the procedure to evaluate corrosion status in RC structures by half cell potentiometer	3
2c.	Explain the significance of surface hardness in predicting the strength of material.	3
3a.	What is relation between chloride diffusivity and corrosion of reinforcement	3
3b.	What is carbonation. What is carbonation shrinkage.	4
3c.	Explain the basic principle of Windsor probe and its significance in Civil engineering.	3
4a.	How does the transport of aggressive ions through the concrete microstructure take place?	3
4b.	What are electromagnetic waves? How does electromagnetic waves propagate through vacuum, air, liquids and solids.	4
4c.	Compare xrays and gamma rays	3
5a.	Compare common offset survey and common mid point survey.	3
5b.	How are electromagnetic waves transmitted through ground.?	3
5c.	Define Refraction. Explain Snells' Law and its significance	4