



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 : 3Hrs

Max. Marks: 50 Marks

Instructions to Candidates:

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

1a.	What are the issues related to non destructive evaluation of material properties	4
1b.	What are the techniques that can be used for direct or indirect strength evaluation of materials in general and concrete in particular.	3
1c.	Explain the significance of Document check before conducting detailed Visual Inspection	3
2a.	Why Surface hardness cannot be related to the true strength of material.	3
2b.	Explain the working principle and limitation of half cell Potentiometer	4
2c.	Explain the mechanism by which corrosion is induced in RC Structures	3
3a.	What is the procedure to calibrate rebound hammer.	3
3b.	Compare rebound hammer test with Windsor probe test. Which one is better?	4
3c.	What are the factors responsible for carbonation in concrete Structures?	3
4a.	What are the factors affecting electric resistivity in concrete Structures.	3
4b.	Differentiate between acoustic and electric impedance.	3
4c.	Explain the procedure to interpret the radiograph obtained when Fire damaged concrete is subjected to radiographic waves	4
5a.	What are the components of GPR system. Explain the significance of each component	5
5b.	What is difference between an electromagnetic and ultrasound wave? What are modes of sound wave propagation.	5