



MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

DEPARTMENT OF CIVIL ENGINEERING
II SEMESTER M.TECH. (CONSTRUCTION ENGINEERING & MANAGEMENT)

END SEMESTER EXAMINATIONS, MAY 2023

SUBJECT: MAINTENANCE AND REHABILITATION OF STRUCTURES [CIE 5005]

Time:

Date: / /2023

MAX.MARKS: 50

Instructions to Candidates:

- ❖ Answer **ALL** the questions.
- ❖ Any data not provided may be suitably assumed.

Q. No	Question	M	CO
1A	Determine the reliability of an asset for 150 days run with a failure rate of 5 failures per year. Interpret with a neat sketch how preventive maintenance strategy influence failure rate of an asset and how achieved availability can be measured?	5	CO1
1B	Compare the strategic, tactical and operational levels of maintenance Management. Illustrate with a neat flowchart.	5	CO1
2A	Classify the phase transitions in diagnosis of concrete using thermal analysis.	5	CO2
2B	Plan for the visual inspection strategies to be used in diagnosis of a fire damaged structure.	5	CO2
3A	Compare integral damp proofing materials based on its principle of application	5	CO3
3B	List and explain any five factors influencing the selection of repair material for concrete structure	5	CO3
4A	Compare the suitability of using acrylic and polyester bonding aids in repair.	5	CO3
4B	Identify the causes for differential settlement of a structure.	5	CO4
5A	Recommend any two repair methods suitable for addressing spalling and crack in bridge superstructure. Discuss the application with a neat sketch.	5	CO4
5B	Explain with reasoning how vertical irregularities could lead to structural failure in a seismic event.	5	CO5