QP Code: R253B089 | Reg. No | | | | | | | | | | | AY 24

Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
(GIET University)

M. Tech. (Third Semester - Regular) Examinations, December – 2025

24MCTPE23001 – Maintenance and Rehabilitation of Structures
(CTM)

Time: 2 hrs | Maximum: 60 Marks

Answer ALL questions

(The figures in the right hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions	CO #	Blooms Level
a. What is retrofitting**?** Give one example of a retrofitting technique.	CO1	K1
b. Mention two non-destructive testing (NDT) methods used for assessing structural health**.**	CO2	K1
c. What is the purpose of epoxy injection? In which type of structural defect is it used?	CO3	K1
d. List two methods to prevent corrosion of steel reinforcement in concrete structures**.**	CO4	K1
e. Define structural cracks and non-structural cracks. Give one example of each.	CO5	K1

PART – B **(10 x 5 = 50 Marks)**

Answer ***ALL*** the questions	Marks	CO #	Blooms Level
2. a. Explain the process of deterioration in steel and concrete elements of a structure.	5	CO1	K2
b. Discuss the classification of damages in structures and their typical causes.	5	CO1	K3
(OR)			
c. Describe in detail the mechanism of structural damage due to environmental exposure.	5	CO1	K2
d. Analyze the preventive measures to minimize distress in concrete structures.	5	CO1	K3
3.a. Differentiate between physical, chemical, and mechanical causes of damage in structures.	5	CO2	K2
b. Propose a preventive maintenance strategy for a multi-storey concrete building.	5	CO2	K4
(OR)			
c. Evaluate the role of maintenance in preventing structural deterioration.	5	CO2	K3
d. Illustrate with examples how poor design and workmanship contribute to structural distress.	5	CO2	K3
4.a. Propose a preventive maintenance strategy for a multi-storey concrete building.	5	CO3	K3
b. Evaluate the effectiveness of different corrosion protection techniques used in concrete structures.	5	CO3	K2
(OR)			
c. Explain the mechanism of corrosion in steel reinforcement in RCC structures.	5	CO3	K3
d. Discuss the various causes of corrosion in reinforced concrete and methods to prevent it.	5	CO3	K2
5.a. Analyze the mechanism and consequences of desiccation in concrete structures.	5	CO4	K3

b.	Propose methods to minimize fire-induced damage in buildings.	5	CO4	K3
	(OR)			
c.	Explain how fire affects the structural performance of reinforced concrete members.	5	CO4	K2
d.	Discuss the concept of fire rating of structures and the methods used to determine it.	5	CO4	K3
6.a.	Explain the importance of inspection and testing in assessing structural health.	5	CO5	K3
b.	Describe the various symptoms of distress in reinforced concrete structures.	5	CO5	K2
	(OR)			
c.	Propose methods to minimize fire-induced damage in buildings.	5	CO5	K3
d.	Design a corrosion prevention plan for a coastal concrete bridge.	5	CO5	K3

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