PRN:	

Course Code:	PSE106

000416

First Year M. Tech (Structural Engineering) End Semester Examination Winter 2024

Repair and Rehabilitation of Concrete Structures

Day and Date: Fri 6 DEC 2024 Max Marks: **100**

Time: 10:30AM To 01:30PM Duration: **03** hrs

Instructions: 1) All questions are compulsory.

2) Assume suitable data if required and mention it clearly.

3) Use of non-programmable calculator is allowed.

		Marks	Bloom's Level	CO
Q.1	**Attempt the following**			
a)	Elaborate preventative measure for deterioration of concrete structures.	08	2	CO1
b)	Discuss practical difficulties while implementing preventing measures for deterioration of concrete structures.	08	3	CO1
	OR			
b)	Discuss causes of deterioration of concrete, steel structures.	08	3	CO1
Q.2	**Attempt the following**			
a)	define corrosion. Explain causes of corrosion. Elaborate mechanism of corrosion in detail.	08	3	CO1
b)	Discuss effect of cover thickness and cracking in corrosion of structures.	08	3	CO2
	OR			
b)	Discuss following methods of corrosion control in detail: Coatings, Cathodic protection for reinforcement.	08	3	CO2
Q.3	**Attempt any two from the following**			
a)	Explain the role of visual inspection in case of concrete structures.	08	3	CO2
b)	Explain Rebound hammer method as non-destructive test.	08	3	CO3
c)	Elaborate core test in detail.	08	3	CO3

Backlog

Q.4	**Attempt any two from the following**				
	a)	Explain following materials used for the repair of buildings: Ferrocement, Fibre Reinforcement Concrete (FRC)	08	3	CO3
	b)	Explain the mechanism of self-compacting concrete.	08	3	CO4
	c)	Discuss following materials for repair of structures: Polymer modified repair materials, resin-based products, composites.	08	3	CO4
Q.5	**Attempt any Two of the following**				
	a)	Discuss the factors for selection of repair material method.	09	3	CO4
	b)	Explain process of gunite (or shortcrete).	09	3	CO4
	c)	Explain pre-packed concrete in detail and explain its application in repair and rehabilitation of structures.	09	3	CO4
Q.6	**Attempt any Two of the following**				
	a)	Discuss the techniques to overcome deflection of a structural element.	09	2	CO4
	b)	Explain the meaning of chemical disruption.	09	2	CO4
	c)	Write short note on: Weathering wear, Fire leakage.	09	2	CO4

*****

Backlog