Reg. No.															

Question Paper Code	13383

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2025

Eighth Semester

CIVIL ENGINEERING

20CEEL801 – MAINTENANCE, REPAIR AND REHABILITATION OF STRUCTURES

Regulations - 2020

Duration: 3 Hours | Max. Marks: 100

PART - A (MCQ) (10 × 1 = 10 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	Which type of cracks indicates the development of tension in concrete? (a) Medium cracks (b) Isolation crack (c) D-cracking (d) Crazing	1	K1	CO1
2.	What is the primary purpose of structural repair and rehabilitation? (a) Restoration of strength and durability (b) Reduction in construction time (c) Aesthetic enhancement (d) Increase in initial cost.	1	K1	CO1
3.	What component of the building undergoes elastic deformation? (a) Super structure (b) Sub-structure (c) Foundation (d) Structural elements	1	K1	CO2
4.	Which of the following is not a measure for the prevention of cracks? (a) Aggregate with low coefficient of thermal expansion (b) Choice of material (c) Design of building (d) Construction techniques and practices	1	K1	CO2
5.	Which of the following is the normal defect that is looked during the visual inspection? (a) Corrosion of rebars (b) Cover details (c) Honeycomb (d) Joints formation	1	K1	CO3
6.	What component of the building undergoes sulphate attack? (a) Super structure (b) Sub-structure (c) Foundation (d) Structural elements	1	K1	CO3
7.	Which of these are the external sources of dampness? (a) Precipitation (b) Condensation (c) Leaking services (d) Construction moisture	1	K1	CO4
8.	Which of the following methods is adopted when the treatment is to be given for the basement which is built in damp soil? (a) Usage of foundation drains and DPC (b) Usage of Ferro cement (c) Usage of asphalt (d) Usage of bituminous felts	1	K1	CO4
9.	What is a primary step in restoring a damaged foundation to a new position? (a) Waterproofing the walls (b) Remodeling the roof (c) Jacking under load-bearing walls (d) Replacing electrical wiring	1	K1	CO5
10.	Low velocity in ultrasonic pulse velocity testing indicates _____ (a) good concrete (b) fairly good concrete (c) poor concrete (d) very poor concrete	1	K1	CO6

PART - B (12 × 2 = 24 Marks)

Answer ALL Questions

11.	Define the term maintenance.	2	K1	CO1
12.	What do you mean by deterioration of structure?	2	K1	CO1
13.	What are the needs of Quality assurance for concrete construction?	2	K1	CO2
14.	Explain about cracking due to chemical reactions.	2	K2	CO2
15.	What is High performance concrete?	2	K1	CO3
16.	List out the application of Reactive powder concrete.	2	K1	CO3
17.	Define Corrosion inhibitors.	2	K1	CO4
18.	Recall Underpinning.	2	K1	CO4

19.	Compare the difference between repair, rehabilitation, and retrofitting of structures.		*2*	*K2*	*CO5*
20.	What are the common engineered demolition methods used for large-scale structures?		*2*	*K1*	*CO5*
21.	Outline the factors considered in selecting the appropriate retrofitting technique for a specific structure.		*2*	*K2*	*CO6*
22.	How does Fiber-Reinforced Polymer (FRP) contribute to the rehabilitation of weakened concrete structures?		*2*	*K1*	*CO6*

PART - C (6 × 11 = 66 Marks)

Answer ALL Questions

23.	a)	(i) Explain in brief about various facets of maintenance operations.	*6*	*K2*	*CO1*
		(ii) Outline short notes on causes of deterioration.	*5*	*K2*	*CO1*
		OR			
	b)	Illustrate the assessment procedure for evaluating damaged structures.	*11*	*K2*	*CO1*
24.	a)	Explain in details about Effects of cover thickness and cracking.	*11*	*K2*	*CO2*
		OR			
	b)	Demonstrate the various techniques available for repairing cracks.	*11*	*K2*	*CO2*
25.	a)	Explain in details about the special materials manufacturing procedure and the application of Sulphur infiltrated concrete.	*11*	*K2*	*CO3*
		OR			
	b)	Summarize in details about the application of Geo polymer concrete and Fiber reinforced concrete.	*11*	*K2*	*CO3*
26.	a)	Outline the process of epoxy injection. Also explain routing and scaling with sketches.	*11*	*K2*	*CO4*
		OR			
	b)	Explain in detail about various corrosion protection methods.	*11*	*K2*	*CO4*
27.	a)	Illustrate in details the different methods of strengthening the concrete structure against fire.	*11*	*K2*	*CO5*
		OR			
	b)	Interpret the different methods of strengthening the concrete structure against earthquake.	*11*	*K2*	*CO5*
28.	a)	Explain the structural health monitoring techniques and demolition methods with case studies.	*11*	*K2*	*CO6*
		OR			
	b)	Classify different techniques for repair and protection methods like NDT, load test stability and corrosion protection techniques.	*11*	*K2*	*CO6*