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Question Paper Code : 20310

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2022.

Seventh/Eighth Semester

Civil Engineering

CE 8020 — MAINTENANCE, REPAIR AND REHABILITATION OF
STRUCTURES

(Regulations 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define : Repair and rehabilitation.
2. What are the factors governing maintenance of structures?
3. What are the types of cracks?
4. What are the effects of concrete due to temperature rise?
5. Write short note on vacuum concrete.
6. Write down the name of some industrial wastes for preparation of concrete.
7. Define underpinning.
8. How epoxy injection will be made?
9. List out various strengthening techniques.
10. Briefly define, "Implosion Technique".

PART B — (5 × 13 = 65 marks)

11. (a) Discuss the assessment procedure for evaluation of damaged structures.

Or

- (b) Explain, facets, importance and inspections of maintenance.

12. (a) Explain the following :

(i) Structural and non-structural cracks (7)

(ii) Active and Dormant cracks. (6)

Or

- (b) Explain thermal properties of concrete in detail with neat sketch.

13. (a) Explain the following, bringing out its use and its incorporation in a specific context.

(i) Fibre reinforced concrete (6)

(ii) Self compacting concrete. (7)

Or

- (b) Write in detail the following concrete :

(i) Geopolymer concrete (7)

(ii) Reactive powder concrete (6)

14. (a) What are the materials used for repair work? Explain them in detail.

Or

- (b) (i) List the name of some corrosion inhibitors and give its applications. (7)

(ii) Discuss in detail how the cathodic protection is made to eliminate corrosion of steel bars. (6)

15. (a) Explain the strengthening of structures against cracking, deflection and chemical disruption with example.

Or

- (b) How do you demolish a deteriorated buildings with sound less demolition technique?

PART C — (1 × 15 = 15 marks)

16. (a) Explain the use of half-cell potential measurements with a sketch. Explain its function and uses.

Or

- (b) How the strength of concrete in the damaged structure is assessed both qualitatively and quantitatively. Explain with a case study.
