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Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 90308

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 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. Mention the main reasons for maintenance and inspection of concrete structures.
2. State the purpose of repair and rehabilitation of structures.
3. How does porosity affect the concrete?
4. What do you understand by "Crazing"?
5. Write the advantages of vacuum concrete.
6. Why are discrete fibres added to the concrete?
7. Define the term. Underpinning. Under what situations, this technique is preferred.
8. What is the role of inhibitors in resisting corrosion in steel reinforcement?
9. What are the precautions to be considered to prevent water leakage on roofs?
10. What is meant by structural health monitoring?

PART B — (5 × 13 = 65 marks)

11. (a) Describe with a neat flow chart the assessment procedure for evaluating concrete structures.

Or

(b) What are the causes of the deterioration of concrete structures? Discuss any four of them in detail.

12. (a) Discuss the various factors influencing the strength of concrete.

Or

(b) What is meant by the alkali-aggregate reaction? Discuss its mechanism and preventive measures in concrete structures.

13. (a) What is the purpose of using SCC? Mention the materials, salient properties and tests of SCC.

Or

(b) How do you manufacture the sulphur infiltrated concrete? Also, mention its applications in the construction industry.

14. (a) Explain epoxy injection for repairing a concrete slab in detail.

Or

(b) Write a descriptive note on the cathodic protection to steel reinforcement in concrete structures.

15. (a) How do you repair and rehabilitate a structure distressed due to fire? Discuss in detail.

Or

(b) Clearly explain any two methods adopted for demolishing the concrete structures.

PART C — (1 × 15 = 15 marks)

16. (a) List the various non-destructive methods carried out for the assessment of the damaged structure. Describe anyone in detail.

Or

(b) Suggest a suitable retrofitting technique to improve the load-carrying capacity of columns against earthquake action. Describe with suitable sketches.

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