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17CV753

Seventh Semester B.E. Degree Examination, Feb./Mar.2022
Rehabilitation and Retrofitting of Structures

Time: 3 hrs.   Max. Marks: 100

Note: *Answer any FIVE full questions, choosing ONE full question from each module.*

Module-1

1 a. What are the causes of deterioration? Explain any one. **(05 Marks)**
   b. Explain different evaluation methods of structural damage to the structural elements due to earthquake. **(15 Marks)**

OR

2 a. Define following:
     (i)   Repair.   (ii)   Retrofitting
     (iii) Rehabilitation   (iv) Deterioration. **(08 Marks)**
   b. Explain factors causing external and internal distress. **(12 Marks)**

Module-2

3 a. Explain the causes of damage in fresh concrete and hardened concrete. **(12 Marks)**
   b. Explain structural cracks and non structural cracks. **(08 Marks)**

OR

4 a. Write a short note on sulphate attack. **(06 Marks)**
   b. Define NDT, mention the methods of NDT and explain any two methods in detail. **(14 Marks)**

Module-3

5 a. Define durability. Mention the factors influence on durability. **(05 Marks)**
   b. Write a short note on corrosion inhibitors. **(05 Marks)**
   c. Explain the corrosion mechanism in reinforced concrete structures with the help of sketch. **(10 Marks)**

OR

6 a. Explain the influence of design and construction errors on durability of concrete. **(10 Marks)**
   b. Explain the effect of cover thickness and cracking on durability of concrete. **(10 Marks)**

Module-4

7 a. Define maintenance and explain classification of maintenance. **(10 Marks)**
   b. Mention :
     (i)   Necessity of Jacketing.
     (ii) Advantages of Jacketing.
     (iii) Types of Jacketing. **(10 Marks)**

OR

8 a. Explain RCC Jacketing for beam and column with sketch. **(12 Marks)**
   b. Explain Externally Bonding (ERB) technique and Near Surface Mounted (NSM) technique with sketches. **(08 Marks)**

Module-5

9 a. Mention different types of special concrete. Explain any two. **(10 Marks)**

b. Explain :
   - (i) Gunite and Shotcrete.
   - (ii) Shoring and Underpinning. **(10 Marks)**

OR

10 Write a note on:
   a. Fibre Reinforced Concrete (FRC)
   b. Concrete chemicals.
   c. Rust eliminators.
   d. Mortar repair for cracks. **(20 Marks)**

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