

6E6038

Roll No. _____

Total No of Pages: 3

6E6038

B. Tech. VI-Sem. (Main/Back) Exam., April/May-2016

Civil Engineering

6CE6.3A Repair & Rehabilitation of Structures

Time: 3 Hours

Maximum Marks: 80

Min. Passing Marks (Main & Back): 26

Instructions to Candidates:-

Attempt any five questions, selecting one question from each unit. All Questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly.

Units of quantities used/ calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. NIL _____

2. NIL _____

UNIT-I

Q.1 (a) What are the main three types of Aggressive Deteriorating Chemical Agents? Explain each one in detail. [8]

(b) What do you mean by abrasion & erosion in concrete structures? Also explain permeability of concrete. [8]

OR

Q.1 (a) Why cracks occur in concrete surface? Explain different types of cracks in concrete. [6]

(b) Write down the preventive measures of cracking. Also mention their measurement techniques. [6]

(c) What are the causes of pitting? [4]

UNIT-II

- Q.2 (a) What do you mean by NDT? Write down the principle and procedure behind Rebound hammer. [10]
- (b) What is corrosion? Explain Corrosion Resistivity Method. [6]

OR

- Q.2 (a) What do you mean by ultrasonic pulse velocity? What are the equipments used in this test? How this instrument is influenced while working in concrete? [8]
- (b) How Penetration Resistance and Pull Out Test is different from Core Cutting Test? [4]
- (c) What is "Rebar Locator" and how it is used? [4]

UNIT-III

- Q.3 (a) What should be the selection criteria for choosing any repair material? [6]
- (b) Write short note on :-
- (i) Polymer & resin [5]
- (ii) Ferrocement [5]

OR

- Q.3 (a) Write down the properties of FRP. Enlight some reasons due to which these are used as repairing material. [6]
- (b) Explain "Self Curing Compounds" in detail. [6]
- (c) Define "Guniting" and "Bonding Aspect". [4]

UNIT-IV

- Q.4 (a) What do you mean by Grouting? Explain different types of grouting. [8]
- (b) What is the main purpose of Jacketing? What is the technique behind this method? [8]

OR

- Q.4 (a) How under water repairing is done in civil structure? Also mention their repairing material. [8]
- (b) What is the application of shotcreting? How it is done? [8]

UNIT-V

- Q.5 (a) What are preliminary investigations? Why it is necessary for structures before rehabilitation? [8]
- (b) Discuss any case study while rehabilitating the structure, with proper steps in detail. [8]

OR

- Q.5 (a) What are the causes of distress and deterioration in any structures. [6]
- (b) What all methods you will take for the repair and rehabilitating of any old monument, so that you may keep this monument as heritage for further more years. [10]