

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– VIII (New) EXAMINATION – WINTER 2019

Subject Code: 2180607

Date: 25/11/2019

Subject Name: Repairs & Rehabilitation Of Concrete Structures

Time: 02:30 PM TO 05:00 PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Enlist the causes of distress in RCC buildings? **03**
(b) Explain the importance of cover in RCC structures. **04**
(c) Discuss the methods to prevent corrosion of reinforcement in RCC during design, construction and after construction. **07**
- Q.2** (a) Discuss the effect of sulphate attack on concrete. **03**
(b) What are the main objectives of condition assessment of structures? Explain in short various stages of condition assessment. **04**
(c) Explain the term repair, rehabilitation and seismic retrofitting with reference to RCC buildings. **07**
- OR**
- (c) What is carbonation? State and explain the factors affecting rate of carbonation. Explain the method to test the depth of carbonation. **07**
- Q.3** (a) Explain injection grouting for RCC buildings. **03**
(b) Describe the process of gunniting with reference to buildings. **04**
(c) State in details the essential parameters of repair materials. **07**
- OR**
- Q.3** (a) Enlist various types of Non- Destructive Tests used to determine strength of existing structures. **03**
(b) Explain Rebound Hammer test and its limitations. **04**
(c) What do you understand by jacketing? Explain jacketing of column step by step along with sketches. **07**
- Q.4** (a) Explain the effect of freezing and thawing on concrete. **03**
(b) What is shore? Enlist different types of shores. **04**
(c) What do you mean by Structural Health Monitoring? What are the methods for SHM of RCC structures? **07**
- OR**
- Q.4** (a) Explain factors affecting permeability of concrete. **03**
(b) Enlist the design and construction errors which cause deterioration of RCC structures in long run. **04**
(c) Explain alkali aggregate reaction. State and explain factors promoting and controlling alkali aggregate reaction. **07**
- Q.5** (a) Write short notes on Vacuum Concrete. **03**
(b) Explain Polymer Concrete and its application. **04**
(c) Explain crack development mechanism in RCC and various crack repair techniques. **07**

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OR

- Q.5** (a) Write short notes on Fiber Reinforced Concrete. **03**
(b) Explain cathodic protection of steel in RCC. **04**
(c) Explain importance of maintenance of RCC buildings. Discuss common maintenance required for RCC buildings. **07**
