

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE – SEMESTER-VIII EXAMINATION- SUMMER 2020**

**Subject Code: 2180607****Date: 26/10/2020****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.

		MARKS
<b>Q.1</b>	(a) Define: 1. Repair 2. Rehabilitation 3. Retrofitting	<b>03</b>
	(b) Enlist different crack repair techniques. Explain any one in detail.	<b>04</b>
	(c) Enlist various causes of distress and deterioration of concrete and explain any three in detail.	<b>07</b>
<b>Q.2</b>	(a) Define: 1. Durability of Concrete 2. Permeability of Concrete 3. Efflorescence	<b>03</b>
	(b) Write short note on Ferro Cement.	<b>04</b>
	(c) Explain parameter for selection of repair material.	<b>07</b>
<b>OR</b>		
	(c) List various Non-destructive tests for assessment of strength of concrete. Explain any one in detail.	<b>07</b>
<b>Q.3</b>	(a) Write short note on shoring.	<b>03</b>
	(b) What are the causes of damage in Masonry buildings?	<b>04</b>
	(c) Enlist various crack repair techniques in concrete and explain any one in detail.	<b>07</b>
<b>OR</b>		
<b>Q.3</b>	(a) Explain Thermal properties of the concrete.	<b>03</b>
	(b) Discuss Epoxy as a repair material.	<b>04</b>
	(c) Enlist different systems of protection for reinforcing steel in RCC structure. Also discuss each in detail.	<b>07</b>
<b>Q.4</b>	(a) Mention steps for patch repair in RCC slab where carbonation depth has reached reinforcement level.	<b>03</b>
	(b) Explain how to improve durability of concrete in sea water.	<b>04</b>

- (c) What is carbonation? State and explain the factor affecting the rate of carbonation. Explain the method to test depth of carbonation. **07**

**OR**

- Q.4 (a)** Differentiate between Porosity and Permeability. **03**

- (b) Differentiate between retrofitting and rehabilitation of structures. **04**

- (c) Explain jacketing. Discuss repair and strengthening of columns by jacketing technique. **07**

- Q.5 (a)** Write short note on Polymere Concrete. **03**

- (b) Explain visual inspection to assess fire damaged structures. **04**

- (c) Explain long term health monitoring of structures. **07**

**OR**

- Q.5 (a)** Write short note on fiber wrap technique. **03**

- (b) Enlist different crack repair techniques. Explain any one in detail **04**

- (c) Discuss various types of maintenance. Also explain importance of building maintenance **07**

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