

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VIII (Old) EXAMINATION – WINTER 2019****Subject Code: 180607****Date: 29/11/2019****Subject Name: Repairs & Rehabilitation Of 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) Differentiate between micro-crack & macro-crack. Explain the mechanism of micro-cracking due to differential thermal exposure in structures. **07**
- (b) Make a list of various construction and design deficiencies in structures. Explain the consequences of any two in detail. **07**

- Q.2** (a) Define Condition assessment of structures. Explain its objectives. **07**
- (b) Define Durability of Concrete. Enlist factors affecting durability in concrete structures. **07**

OR

- (b) What are the major causes of deterioration in Concrete structures? Explain the chemical deterioration due to Alkali aggregate reaction and Carbonation of concrete. **07**

- Q.3** (a) Write requirements as per IS:456 for durability of concrete structures. **07**
- (b) What is the importance of the field and laboratory testing for damage assessment of the Structure? **07**

OR

- Q.3** (a) Mention the essential requirements of a repair material. **07**
- (b) Explain briefly: (a) Foamed Concrete (b) Fiber Reinforced concrete (c) Polymer latex concrete. **07**

- Q.4** (a) Describe in detail the different techniques you will apply to repair or strengthen a distressed RCC slab. **07**
- (b) Enlist the various demolition techniques and explain few in detail. **07**

OR

- Q.4** (a) What is meant by Jacketing? Discuss repair and strengthening of columns by jacketing. **07**

- Q.4** (b) Write short note on Foundation Rehabilitation Methods **07**

- Q.5** (a) Explain the crack repair by Routing and Sealing. **07**
- (b) Explain the process of corrosion in Reinforced concrete structures. Mention the methods for corrosion protection. **07**

OR

- Q.5** Differentiate between the following (Any seven) **14**
1. Repair & Rehabilitation
 2. Active crack and Passive crack
 3. Structural vs Non-structural crack
 4. Design error & Construction error
 5. Durability and Serviceability
 6. Porosity & Permeability

7. Plastic Shrinkage & Drying shrinkage
8. Jacketing & Overlaying
9. Air voids & Capillary porosity
