

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**PPDC - SEMESTER- VIII • EXAMINATION – SUMMER 2014**

**Subject Code: X80605****Date: 31-05-2014****Subject Name: Repairs and rehabilitation of structure****Time: 10.30 am TO 01.00 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) Which are the various parameters that influence crack -width. Explain in detail. **07**
- (b) What is the importance of the subject of Repairs & Rehabilitation of structures. Distinguish between Repair & Rehabilitation **07**

- Q.2** (a) What are the major causes of deterioration in Concrete structures. List the various signs of distress in concrete structures. **07**
- (b) Air and moisture permeability of the concrete adversely affects the strength of concrete. Justify with relevant examples. **07**

**OR**

- (b) Differentiate between the following: (any two) **07**
- (a) Rehabilitation & Retrofitting
  - (b) Porosity & Permeability
  - (c) Micro-cracking & Macro cracking
  - (d) Plastic Shrinkage & Drying shrinkage

- Q.3** (a) Define Durability of Concrete. Explain the holistic model of deterioration of concrete. **07**
- (b) What is the importance of the field and laboratory testing for damage assessment of the structure? **07**

**OR**

- Q.3** (a) Explain the various requirements as per IS 456:2000 for the durability of the RCC structures. **07**
- (b) Which are the distinct stages to be recognized while taking up any repair work. **07**

- Q.4** (a) Explain in detail the Local and the global deficiencies in buildings. **07**

- (b) Make a list of the causes that leads to the following deficiency: **07**

1. Construction error
2. Design error
3. Accidental loading
4. Chemical attack
5. Temperature changes
6. Freezing & Thawing
7. Differential settlement of foundation

**OR**

- Q.4 (a)** What is meant by Jacketing? Discuss repair and strengthening of columns by jacketing. **07**
- Q.4 (b)** Define Non Destructive testing of Concrete. Explain any one NDT in detail **07**
- Q.5 (a)** Explain the crack repair by Routing and Sealing. **07**
- Q.5 (b)** Write down the basic criteria to be kept in mind for selecting the repair material. **07**

**OR**

- Q.5 (a)** Write short notes on the following ( any four) **14**
- 1) Construction & Design deficiencies
  - 2) Classification of the cracks
  - 3) Classification of Damage
  - 4) Corrosion of Concrete & reinforcement
  - 5) Demolition Techniques
  - 6) General requirements of Quality repair

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