

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

# GUJARAT TECHNOLOGICAL UNIVERSITY

M.E. SEMESTER III–EXAMINATION – WINTER 2015

**Subject code: 2732004**

**Date: 04/12/2015**

**Subject Name: Rehabilitation and Retrofitting of Structures**

**Time: 2:30 PM to 5:00 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)** List various construction and design deficiency which causes distress in the RCC structure. **07**

**(b)** Explain design principle, techniques and working mechanism of any two Nondestructive tests carried out for the assessment of concrete strength in detail. **07**

**Q.2 (a)** What do you understand by durability? What is the importance of durability in the design and construction of concrete structures? **07**

**(b)** Write short note on **07**  
1) Alkali Silica reaction  
2) Sulphate attack

**OR**

**(b)** Write short note on any two **07**  
1) Acid Attack  
2) Effect of De-icing of salts

**Q.3 (a)** Write short note on : Techniques applied for condition assessment of structure **07**

**(b)** Explain the effect of following on RCC structures **07**  
1) Freezing and thawing  
2) Sea water attack

**OR**

**Q.3 (a)** Explain the effect of following on RCC structures **07**  
1) Carbonation  
2) Abrasion , erosion and cavitation

**(b)** Explain how corrosion occurs in reinforcements in concrete. **07**

**Q.4 (a)** What are the parameters of selection of repair materials? **07**

**(b)** What are the requirements for durability as per IS 456-2000. **07**

**OR**

**Q.4 (a)** Enlist repair materials available in the market for building maintenance. Discuss any one maintenance problem in detail. **07**

**(b)** Explain the causes of Structural and Non Structural cracks in the buildings. **07**

- Q.5 (a)** Explain various schemes of retrofitting beam for different types of structural deficiency. **07**
- (b)** Explain the various methodologies to repair an earthquake deficient masonry structure. **07**

**OR**

- Q.5 (a)** Explain various schemes of retrofitting column for different types of structural deficiency. **07**
- (b)** Explain the role of quality control in construction as preventive measure against deterioration. **07**

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