

GUJARAT TECHNOLOGICAL UNIVERSITY**M.E –IIst SEMESTER–EXAMINATION – JULY- 2012****Subject code: 1722006****Date: 10/07/2012****Subject Name: Rehabilitation of Structures****Time: 10:30 am – 13:00 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) Define Durability of concrete and discuss various aspects and factors affecting durability of concrete in detail. **07**
- (b) Explain how the Carbonation in hardened concrete takes place? Discuss the rate of carbonation and factors affecting the carbonation in hardened concrete. **07**

- Q.2** (a) What is Non-destructive testing of concrete? Enlist various Non-destructive testing methods used for concrete and explain the rebound hammer test in detail. **07**
- (b) Discuss effects of corrosion on reinforced concrete and steel structures. How to assess the corrosion of reinforcement in concrete members? **07**

OR

- (b) What is Alkali-Silica reaction in concrete? Discuss the reasons and factors affecting Alkali –Silica reaction in detail. **07**

- Q.3** (a) Distinguish and Explain the terms in detail: Repair, Rehabilitation and Retrofitting of buildings with relevant examples. **07**
- (b) Enlist all important materials and their essential parameters used in repair, rehabilitation and retrofitting of concrete structures. **07**

OR

- Q.3** (a) What are the various methods of repairing of damaged concrete structures? **07**
- (b) Explain the methods of Dry-packing and Shotcrete with neat sketches for repairing of a damaged concrete member. **07**

- Q.4** (a) Write a short note on role of quality control in construction as preventive measure of building maintenance. **07**
- (b) Discuss the sentence “study of a building failure could be a learning lesson” with relevant examples. **07**

OR

- Q.4** (a) What is a conditional survey? Give definition, objective and different stages of a conditional survey for a damaged building. **07**
- Q.4** (b) Prepare a checklist showing all important causes of defects and deterioration of a building. Also explain the terms spalling and efflorescence of concrete. **07**

- Q.5** (a) What are the effects of freeze-thaw, chemical attack, and abrasion on concrete and steel structures? **07**
- (b) Give your suggestions to improve the corrosion resistance of reinforced concrete and steel structure members. **07**

OR

- Q.5** (a) In case of the conditional survey of a building damaged due to earthquake, what are the main points to be taken care while suggesting the strengthening methods? **07**
- (b) What is a Push-over Analysis for structures? What are the aim and objective of this method? Enlist the benefits of this method of structural analysis. **07**
