

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VIII (OLD) - EXAMINATION – SUMMER 2017****Subject Code:180607****Date:06/05/2017****Subject Name: Repairs & Rehabilitation of Structures (Department Elective-II)****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) What are the causes of distress in reinforced concrete structures? Describe any two in detail. **07**
- (b) What are the different causes of corrosion of steel in reinforced concrete? Explain the corrosion mechanism with sketch. **07**
- Q.2** (a) Explain the terms Repair, Rehabilitation and Retrofitting and the extent of work under each. **07**
- (b) What is meant by carbonation of concrete? What are the factors affecting it? How is it determined in concrete? **07**
- OR**
- (b) What are the various methods of demolition of buildings? Explain suitable demolition method for a 4 storey building located in city center. **07**
- Q.3** (a) Explain complete process of guniting. In which conditions guniting is preferred over jacketing. **07**
- (b) Classify the repair materials based on type of application. State in details the essential parameters of repair materials. **07**
- OR**
- Q.3** (a) What is meant by Structural Health Monitoring? What parameters of structures are considered for monitoring under SHM? **07**
- (b) What do you understand by jacketing? Under what circumstances it is preferred? Explain the jacketing of column with the help of sketches. **07**
- Q.4** (a) Enlist various non destructive tests for assessment of strength of concrete. Describe rebound hammer test. **07**
- (b) Explain grouting. Explain injection grouting method for repair of any one RCC structural element. **07**
- OR**
- Q.4** (a) What are the objectives of condition assessment? Explain various stages of condition assessment for a damaged building. **07**
- (b) What are the causes of cracks in reinforced concrete? Explain each in detail. **07**
- Q.5** (a) Define thermal properties of concrete **07**
- (i) Thermal conductivity
- (ii) Thermal diffusivity
- (iii) Specific heat
- (iv) Co-efficient of thermal expansion
- (b) Write short notes on any two. **07**
- (i) Fibre Reinforced Concrete
- (ii) Vacuum Concrete
- (iii) Ferro cement

OR

- Q.5** (a) Explain alkali aggregate reaction. What are the factors promoting it? **07**
How it can be controlled?
- (b) Write short notes on any two. **07**
(i) Sulphur Infiltrated Concrete
(ii) Polymer Concrete
(iii) Foamed Concrete
