

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VIII (NEW) - EXAMINATION – SUMMER 2018

Subject Code: 2180607

Date: 02/05/2018

Subject Name: Repairs & Rehabilitation of Concrete

Structures(Departmental Elective - III)

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) Define (i) Repair (ii) Rehabilitation (iii) Retrofitting **03**
(b) Discuss scenario of distressed structures in India. **04**
(c) Enlist various causes of distress and deterioration of concrete and explain any three in detail. **07**

- Q.2** (a) Write short note on Shotcrete. **03**
(b) Discuss Fiber wrap technique to strengthen beam for flexure. **04**
(c) List various test used for assessment of concrete. Explain Ultrasonic pulse velocity test in detail. **07**

OR

- (c) Explain long term structural health monitoring of structures. **07**
Q.3 (a) What is carbonation? State and explain the factor affecting rate of carbonation. Explain the method to test depth of carbonation. **07**
(b) What are the main objectives of condition assessment of structures? Explain various stages of condition survey in detail. **07**

OR

- Q.3** (a) Write short note on Vacuum concrete **03**
(b) Discuss Epoxy as a repair material. **04**
(c) Enlist different systems of protection for reinforcing steel in RCC structure. Also discuss each in detail. **07**
Q.4 (a) Explain differential thermal analysis technique for fire damage assessment. **03**
(b) Explain Fiber Reinforced Concrete in detail. **04**
(c) Discuss parameters for good repair material to be used for repair and rehabilitation works. **07**

OR

- Q.4** (a) Mention steps for patch repair in RCC slab where carbonation depth has reached reinforcement level. **03**
(b) Enlist different crack repair techniques. Explain any one in detail. **04**
(c) Define the term jacketing. Discuss repair and strengthening of columns by jacketing technique. **07**
Q.5 (a) What is building maintenance? List the activities covered in building maintenance. **03**
(b) Discuss sulphur infiltrated concrete. **04**
(c) Write short note on Foundation Rehabilitation Methods. **07**

OR

- Q.5** (a) What are the causes of damage in Masonry buildings? **03**
(b) Write short note on Ferro Cement. **04**
(c) Discuss various types of maintenance. Also explain importance of building maintenance. **07**
