

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VIII(NEW) EXAMINATION – SUMMER 2019****Subject Code:2180607****Date:13/05/2019****Subject Name:Repairs & Rehabilitation Of Concrete Structures****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 the terms Thermal Conductivity, Thermal Diffusivity and Coefficient of Thermal Expansion with reference to concrete. **03**
- (b) Explain the process of durable concrete repair. **04**
- (c) Explain deterioration of concrete due to Weathering and Sulphate attack in detail. **07**
- Q.2** (a) Enlist the essential parameters for good repair material. **03**
- (b) Write short note on Plate Bonding technique. **04**
- (c) List various test used for assessment of concrete. Explain Pull-Out test method for assessment of concrete. **07**
- OR**
- (c) Explain structural health monitoring for bridges. **07**
- Q.3** (a) Define carbonation. State and explain the factor affecting rate of carbonation. Also explain how carbonation deteriorates concrete. **07**
- (b) State the objectives of condition survey. Explain various stages of condition survey in detail. **07**
- OR**
- Q.3** (a) Define (i) Repair (ii) Rehabilitation (iii) Retrofitting. **03**
- (b) Discuss Epoxy as a repair material. **04**
- (c) Differentiate between porosity and permeability of concrete. Explain in brief factors affecting permeability of concrete. **07**
- Q.4** (a) Explain differential thermal analysis technique for fire damage assessment. **03**
- (b) Explain the process of Alkali aggregate Reaction. Enlist the factors promoting Alkali aggregate Reaction. **04**
- (c) Explain the mechanism of corrosion of steel embedded in concrete. Enlist the methods to control corrosion of steel reinforcement in RCC. Explain any one method. **07**
- OR**
- Q.4** (a) Enlist different crack repair techniques. Explain any three in detail. **07**
- (b) Define the term jacketing. Discuss strengthening of beams by jacketing technique. **07**
- Q.5** (a) Enlist various causes of damage in Masonry buildings. **03**
- (b) Write short note on Ferro Cement. **04**
- (c) Discuss Underpinning for foundation rehabilitation in detail. **07**
- OR**
- Q.5** (a) Define the term 'Building Maintenance'. Enlist various activities to be performed for maintenance of building. **03**
- (b) Discuss Temperature effect on concrete. **04**
- (c) Discuss various types of maintenance. Also explain importance of building maintenance. **07**
