

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VIII (NEW) EXAMINATION – SUMMER 2022****Subject Code:2180607****Date:02/06/2022****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.
4. Simple and non-programmable scientific calculators are allowed.

- Q.1** (a) Define (i) Repair (ii) Rehabilitation (iii) Retrofitting **03**  
 (b) Explain the process of durable concrete repair. **04**  
 (c) Explain the assessment procedure for inspection and evaluation of damaged structure. **07**
- Q.2** (a) Write short note on Shotcrete. **03**  
 (b) Explain the factors affecting permeability of concrete. **04**  
 (c) List the various tests 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) Explain the need of cover to concrete and also list out IS:456-2000 recommendations for cover in RCC structures. **03**  
 (b) Discuss Guniting technique and states its applications. **04**  
 (c) List out various Non-Destructive tests used to determine strength of existing structure. Explain any one of them. **07**
- OR**
- Q.3** (a) Enlist the works which are taken as building maintenance. **03**  
 (b) Discuss Epoxy as a repair material. **04**  
 (c) What is meant by jacketing? Discuss repair and strengthening of columns by jacketing. **07**
- Q.4** (a) Write a note on methodology of Rapid Visual Inspection of Structures. **03**  
 (b) Write short note on Vacuum concrete. **04**  
 (c) Discuss parameters for good repair material to be used for repair and rehabilitation works. **07**
- OR**
- Q.4** (a) Write a short note on polymer concrete. **03**  
 (b) Explain the scope and objectives of Preliminary Investigation as well as Detailed Investigation **04**  
 (c) Explain mechanism of corrosion of steel embedded in concrete. Enlist methods to control corrosion of reinforcement & explain any one. **07**
- Q.5** (a) What is building maintenance? List the activities covered in building maintenance. **03**  
 (b) Discuss the Temperature effect on concrete. **04**  
 (c) Explain the “Rebound Hammer Test” with neat sketches. **07**

**OR**

- Q.5** (a) Enlist various causes of damage in Masonry buildings. **03**  
(b) Write short note on freezing and thawing. **04**  
(c) What is SHM? How SHM can be applied to buildings. Explain in detail. **07**

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