

GUJARAT TECHNOLOGICAL UNIVERSITY
BE- SEMESTER-VIII (NEW) EXAMINATION – WINTER 2020

Subject Code: 2180607

Date: 21/01/2021

Subject Name: Repairs & Rehabilitation Of Concrete Structures

Time: 02:00 PM TO 04:00 PM

Total Marks: 56

Instructions:

1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

		MARKS
Q.1	(a) Define (i) Repair (ii) Rehabilitation (iii) Retrofitting	03
	(b) Attempt Following:	04
	(i) Main reason of crack in concrete during fresh stage of concrete is _____. (Plastic shrinkage, Drying shrinkage)	
	(ii) The freezing water in pores of concrete expands about ____% in volume as it is converted to ice. (5, 9, 15)	
	(iii) In R.C.C. alkalinity of concrete should be maintained above _____ to prevent corrosion. (10.0, 11.5, 12)	
	(iv) The sulphate attack can be controlled by use of _____. (Pozzollan, Air entrainment, high alumina).	
	(c) What is condition assessment? What are the objectives of it. Explain various stages of it in detail.	07
Q.2	(a) Enlist causes of distress in reinforced concrete structures.	03
	(b) Write short note on Windsor probe test.	04
	(c) Explain the restoration of earthquake damaged masonry structures.	07
Q.3	(a) Enlist various types of waterproofing materials.	03
	(b) Write short note on Vacuum Concrete.	04
	(c) What is Jacketing. Explain Column Jacketing in detail with neat sketch.	07
Q.4	(a) Explain annual repairs and day to day repair.	03
	(b) Write short notes on Pull out test.	04
	(c) Enlist and Explain long term health monitoring techniques.	07
Q.5	(a) Write short note on: Foamed concrete.	03
	(b) Explain polymer impregnated concrete.	04
	(c) Discuss Underpinning for foundation rehabilitation in detail.	07
Q.6	(a) Explain differential thermal analysis technique for fire damage assessment.	03
	(b) Explain alkali-silica reaction.	04
	(c) List various techniques for crack repair. Explain grouting in detail.	07
Q.7	(a) Enlist essential parameters of good repair material. Explain any one in detail.	03

- (b) Explain factors affecting permeability of concrete. **04**
 - (c) Explain method of wrapping for retrofitting of structure. List the materials used for wrapping for an existing reinforced concrete beam. **07**
- Q.8**
- (a) Write short note on : Crack sealing materials. **03**
 - (b) Explain the method of cathodic protection of reinforcement. **04**
 - (c) What is meant by carbonation of concrete? What are the factors affecting it? How it is determined in concrete? **07**
