

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER- VII EXAMINATION – SUMMER 2026

Subject Code:3170616

Date:29-05-2026

Subject Name:Retrofitting of structures

Time:02:30 PM TO 05:00 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.

		MARKS
Q.1	(a) What is a condition assessment? Give main objectives of condition assessment.	03
	(b) Explain need of concrete cover in RCC structure. Give IS:456-2000 recommendations for nominal cover.	04
	(c) Explain effect of freezing and thawing on RCC structure.	07
Q.2	(a) List various types of shoring and explain raking shore with sketch.	03
	(b) Explain effect of acid attack on concrete.	04
	(c) List out various construction errors which leads to the deterioration of concrete structure.	07
	OR	
	(c) Explain column jacketing with neat sketch.	07
Q.3	(a) Enlist various thermal properties of concrete and explain coefficient of thermal expansion.	03
	(b) Write short note on vacuum concrete.	04
	(c) Write short note on fiber reinforced concrete.	07
	OR	
Q.3	(a) What steps will you follow to correct a deflected RCC slab.	03
	(b) How to carry out repairs of leakage from terrace?	04
	(c) Explain injection grouting for RCC buildings.	07
Q.4	(a) Explain routine and periodic maintenance.	03
	(b) Write a short note on transport mechanism of fluids into the concrete.	04
	(c) Enlist various strengthening methods for beams and slabs. Explain one strengthening method in detail for both beam and slab.	07
	OR	
Q.4	(a) Mention various signs of distress seen in deteriorated concrete structure.	03
	(b) List down the various factors to be considered while selecting repair method and steps to be followed to carry out an effective repair.	04
	(c) Define alkali-aggregate reaction and explain it in detail.	07
Q.5	(a) Enlist various types of non-destructive tests.	03
	(b) How would you ensure quality control in concrete construction?	04
	(c) Explain the mechanism of corrosion in concrete structures.	07

OR

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| Q.5 | (a) | Define (i) Repair (ii) Restoration (iii) Retrofitting. | 03 |
| | (b) | Write short note on fiber wrap technique. | 04 |
| | (c) | Explain rebound hammer test with neat sketch. | 07 |
