Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII (NEW) EXAMINATION – SUMMER 2024

Subject Code:3170616 Date:22-05-2024

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)**	Explain routine and periodic maintenance.	**03**
	(b)	Explain the significance of a cover in an RCC structure. Provide IS:456-2000 guidelines for nominal cover.	**04**
	(c)	Mention the major points of difference between a new construction work and repair/strengthening work.	**07**
Q.2	**(a)**	Write short note on polymer impregnated concrete.	**03**
	(b)	List down the various techniques to strengthen the foundation.	**04**
	(c)	Enlist various construction and design errors that lead to fatal failure of structures.	**07**
		OR	
	(c)	Enlist various types of shoring and explain raking shore with neat sketch.	**07**
Q.3	**(a)**	List out various physical and chemical deteriorations.	**03**
	(b)	Explain injection grouting for RCC buildings.	**04**
	(c)	Make a list of repairing cracks and explain the process using stitching.	**07**
		OR	
Q.3	**(a)**	How would you ensure quality control in concrete construction?	**03**
	(b)	How do you repair a leak through the terrace?	**04**
	(c)	Write a short note on how do you carried out under-water repairs.	**07**
Q.4	**(a)**	Explain the working mechanism of rebound hammer test.	**03**
	(b)	Differentiate between the following terms: (i) Repair and Retrofitting (ii) Active crack and Passive crack	**04**
	(c)	Explain column jacketing with neat sketch.	**07**
		OR	
Q.4	**(a)**	Explain effect of acid attack on concrete element.	**03**
	(b)	List the various factors to be considered when choosing a repair technique and the steps to take to achieve an efficient repair.	**04**
	(c)	Enlist and explain the different clauses in accordance with IS 456 to ensure the durability of the construction.	**07**

Q.5	**(a)**	Enlist various classifications of repair materials.	**03**
	(b)	Write a short note on transport mechanism of fluids into the concrete.	**04**
	(c)	Describe the phenomenon of corrosion in concrete.	**07**

OR

Q.5	**(a)**	What measures will you suggest to repair a deflected RCC slab?	**03**
	(b)	Write short note on fibre wrap technique.	**04**
	(c)	Define condition assessment. Mention the various objectives of the condition assessment of structures.	**07**

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