

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-V EXAMINATION – SUMMER 2025

Subject Code:3150610

Date:15-05-2025

Subject Name:Concrete Technology

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 the dry process of cement manufacturing using a flowchart.	03
	(b) Enlist and explain the functions of each Bogues compound.	04
	(c) Define workability. List the factors affecting the workability of concrete and explain any three in detail.	07
Q.2	(a) Differentiate between volume batching and weigh batching in concrete mix procedure.	03
	(b) What modifications can a civil engineer implement to make the concrete industry more sustainable?	04
	(c) Explain the bulking of sand using a graph showing the variation of bulking with moisture content.	07
	OR	
	(c) What is curing? List the different methods of curing, and explain any one method in detail.	07
Q.3	(a) Enlist the different types of cement. Differentiate between rapid-hardening cement and quick-setting cement.	03
	(b) Discuss the bleeding of concrete and Enlist the remedies for bleeding.	04
	(c) Define the shrinkage. What are the factors affecting it and their remedial measures?	07
	OR	
Q.3	(a) Write a short note on the segregation of concrete.	03
	(b) List the different types of chemical admixtures and explain any one in detail.	04
	(c) Enlist different types of Mineral admixtures. Explain the fly ash in detail.	07
Q.4	(a) Describe the factors affecting the alkali-aggregate reaction.	03
	(b) Write a short note on self-compacting concrete.	04
	(c) List the factors affecting the strength of concrete & describe each one in detail.	07
	OR	
Q.4	(a) Explain the importance of compaction of concrete.	03
	(b) List the external and internal factors affecting the durability of concrete, and explain how permeability and concrete cover influence durability.	04
	(c) List out various tests of workability. Explain the slump cone test procedure as per the IS code.	07
Q.5	(a) What are the limitations of a rebound hammer test? Also, mention under which circumstances this method is useful.	03
	(b) Explain in brief about the permeability of concrete.	04

- (c) State the different types of special concreting techniques & Explain ready mixed concrete with its merits. **07**

OR

- Q.5** (a) What do you understand by the carbonation of concrete? **03**
(b) List out the factors influencing the mix proportion of concrete. **04**
(c) List the steps for selecting the mix proportion of concrete according to the I.S. code method, and explain any two steps in detail. **07**
