

Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code:2140608

Date:20-07-2024

Subject Name:Concrete Technology

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.

		MARKS
Q.1	(a) Answer the following questions: (i) Define initial and final setting time of cement. (ii) The cement becomes useless if its absorbed moisture exceeds _____% (3, 4, 5). (iii) Enlist the Bogue's compound of Portland cement.	03
	(b) Explain Aggregate Crushing value test for coarse aggregate.	04
	(c) What is durability of concrete? Enlist factors affecting durability of concrete. Explain any one in detail.	07
Q.2	(a) Differentiate between setting and hardening of cement.	03
	(b) What is soundness of cement? Explain soundness test of cement.	04
	(c) Write short note on air entrained concrete.	07
	OR	
	(c) List the factors affecting the workability of concrete and explain any four out of them.	07
Q.3	(a) Discuss acceptance criteria of concrete as per IS456:2000.	03
	(b) Write short note on Pre-packed Concrete.	04
	(c) Discuss various techniques used for transportation of fresh concrete.	07
	OR	
Q.3	(a) Explain the effect of size, shape, texture and grading on concrete.	03
	(b) What are the essential characteristics of water that can be used for mixing and curing of concrete?	04
	(c) What is non-destructive testing of in-situ fresh and hardened concretes? Discuss the Ultrasonic pulse velocity method.	07
Q.4	(a) What is alkali-silica reactivity (ASR) and how is it avoided?	03
	(b) Define the term "Bulking of aggregates". Explain its significance with reference to concrete making.	04
	(c) Briefly explain about factors affecting choice of mix design.	07
	OR	
Q.4	(a) Briefly explain Gel-space ratio.	03
	(b) Explain importance of plasticizers in concrete.	04
	(c) State factors affecting Compressive strength of concrete and explain any one in detail.	07
Q.5	(a) Explain water cement ratio.	03
	(b) Explain applications of Fibre Reinforced concrete?	04

- (c) Explain Indian Standard Mix design method as per IS: 10262:2009 with its salient features. **07**

OR

- Q.5** (a) What are the essential characteristics of water that can be used for mixing and curing of concrete? **03**
- (b) Explain the adverse effect of excessive use of admixture? **04**
- (c) Define curing. State different methods of curing. Describe any one method in detail. **07**
