

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– IV(NEW) EXAMINATION – SUMMER 2023****Subject Code:2140608****Date:13-07-2023****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:	07
	(i) Define Creep of Concrete	
	(ii) Define fineness modulus.	
	(iii) What is the use of Super plasticizer in Concrete?	
	(iv) Define initial and final setting time of cement.	
	(v) Minimum water-cement ratio required for a workable concrete is _____. (0.30, 0.40, 0.50)	
	(vi) Efflorescence in cement is caused due to an excess of ____.	
	(vii) Which strength of concrete is measured by testing Beam?	
	(b) What is the role of calcium chloride and gypsum in the reaction of cement?	03
	(c) Explain heat of hydration of cement.	04
Q.2	(a) Discuss acceptance criteria of concrete as per IS456:2000.	03
	(b) Describe the test for determining initial and final setting time of cement.	04
	(c) What do you understand by carbonation? State and explain the factors affecting the rate of carbonation. Explain the test to determine depth of carbonation.	07
	OR	
	(c) What is permeability of concrete? Enlist factors affecting permeability of concrete. Explain any one in detail.	07
Q.3	(a) State limitations of Rebound Hammer test.	03
	(b) State any four different types of cement with its use.	04
	(c) What is durability of concrete? Enlist factors affecting durability of concrete. Explain any one in detail.	07
	OR	
Q.3	(a) Explain gel-space ratio.	03
	(b) Write short note on Pre-packed Concrete	04
	(c) List the factors affecting the workability of concrete and explain any four out of them.	07
Q.4	(a) Explain bulking of aggregate	03
	(b) Write short note on: Slip form technique.	04
	(c) Explain segregation of concrete. Explain the factors affecting it.	07
	OR	
Q.4	(a) Write short note on chloride attack.	03
	(b) Write short note on cold weather concreting.	04

- (c) State factors affecting Compressive strength of concrete and explain any one in detail. **07**
- Q.5** (a) Explain applications of Fibre Reinforced concrete? **03**
(b) Describe the importance of the quality of water used for concrete. **04**
(c) Explain principle of mix design. Explain parameters and factors influencing mix design. **07**
- OR**
- Q.5** (a) Explain application of polymer concrete? **03**
(b) Define Creep. Explain factors affecting creep of concrete. **04**
(c) Explain Indian Standard Mix design method as per IS: 10262:2009 with its salient features. **07**
