

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-V (NEW) EXAMINATION – WINTER 2024

Subject Code:3150610

Date:28-11-2024

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) Explain the roles of each ingredient used in concrete.	03
(b) Explain the function of Bogue's compound in the hydration process of cement.	04
(c) Discuss the step-by-step procedure of concrete mix design as per IS:10262.	07
Q.2 (a) Differentiate between initial setting time and final setting time of cement, and explain their significance in construction.	03
(b) Discuss the role of plasticizers in concrete and their effect on workability.	04
(c) Enlist different types of cement used in construction and explain any three types concerning to their applications and advantages.	07
OR	
(c) Explain the step-by-step dry process of manufacturing of Ordinary Portland Cement using a flow chart.	07
Q.3 (a) Explain Slump cone test for measuring the workability of concrete.	03
(b) Discuss different methods of curing of concrete.	04
(c) Explain various factors affecting the workability of concrete in detail.	07
OR	
Q.3 (a) Explain the causes and prevention of segregation of concrete.	03
(b) Enlist various methods of concrete compaction and explain their importance.	04
(c) What is Slump loss? Discuss various measures to control slump loss in concrete.	07
Q.4 (a) Discuss various types of shrinkage of the concrete.	03
(b) Enlist various non-destructive tests of concrete and explain any one in detail.	04
(c) Explain the procedure for performing a compressive strength test on concrete cubes.	07
OR	
Q.4 (a) Explain the impact of aggregate grading on the compressive strength of concrete.	03
(b) Discuss various factors that influence the durability of concrete.	04
(c) Explain various factors affecting the compressive strength of concrete in detail.	07
Q.5 (a) How does the marine environment affect the durability of concrete?	03
(b) Write and short not on ready-mix concrete.	04

- (c) Enlist various admixtures used in the concrete. Explain any two admixtures in detail. **07**

OR

- Q.5** (a) Explain the role of gypsum in the hydration process of cement. **03**
(b) Write a short note on lightweight concrete **04**
(c) Explain the precautions that should be taken during concreting in hot and cold weather conditions **07**
