

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – SUMMER 2021****Subject Code:3150610****Date:09/09/2021****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) Write a detailed note on super plasticizer.	03	
	(b) Enlist the major compounds of ordinary Portland cement and briefly describe their importance.	04	
	(c) In which cases the nominal mix and design mix is used? Describe step by step procedure of concrete mix design as per IS code.	07	
Q.2	(a) What are the methods of compaction of concrete?	03	
	(b) Define Durability. Explain its significance.	04	
	(c) What is self-compacting concrete? And what are the advantages and disadvantages of using it?	07	
OR			
Q.3	(c) What is permeability of concrete? Enlist factors affecting permeability of concrete. Explain any one in detail.	07	
	(a) What are the effects of impurities in water on concrete?	03	
	(b) Define the term “Bulking of aggregates”. Explain its significance with reference to concrete making. Explain the simple field test to determine the bulking of aggregates.	04	
Q.3	(c) Describe the dry process of manufacturing of ordinary Portland cement step-wise with the help a flow chart.	07	
	OR		
	(a) Explain Segregations of concrete.	03	
Q.4	(b) Describe the test for determining standard consistency, initial and final setting time of cement.	04	
	(c) Define flakiness and elongation index of aggregate. Explain aggregate impact test.	07	
	(a) What does strength in concrete mean? List the different types of concrete strengths.	03	
Q.4	(b) Explain different types of slumps with sketch	04	
	(c) Define workability of concrete. Enlist the different methods for measuring it in the laboratory? Explain any one of them.	07	
	OR		
Q.4	(a) Explain need of curing. State different methods of curing.	03	
	(b) State the different types of special concrete techniques. Explain the ready mixed concrete with its classification.	04	
	(c) Define Creep. Explain factors affecting creep of concrete	07	
Q.5	(a) What are the essential characteristics of water that can be used for	03	

- mixing and curing of concrete?
- (b) Explain grading of aggregate and its significance **04**
- (c) State factors affecting compressive strength of concrete and explain any one in detail. **07**

OR

- Q.5** (a) Define Shrinkage. Explain Plastic shrinkage **03**
- (b) Enlist the different admixtures used in concrete construction. Explain the function of any two types of admixtures. **04**
- (c) Explain the basic principle on which schmidt rebound hammer works. What are its limitations? **07**
