

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV(New) • EXAMINATION – WINTER 2016

Subject Code:2140608

Date:21/11/2016

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.

		MARKS
Q.1	Answer the following Questions:	
(a)	Attempt following:	10
	(i) What is the effect of size of aggregates on workability?	
	(ii) Define fineness modulus.	
	(iii) Which properties of cement is measured by soundness test?	
	(iv) Enlist the Bogue compound of Portland cement.	
	(v) Give name of cement generally used for the construction of road pavement.	
	(vi) Minimum water-cement ratio required for a workable concrete is _____. (0.30, 0.40, 0.50)	
	(vii) Segregation in concrete results in _____.	
	(viii) Wide and deep cracks in concrete members is repaired by _____. (Grouting, epoxy injection)	
	(ix) Aerated concrete is produced by addition of _____. (Aluminium powder, zinc, sodium silicate)	
	(x) The standard size of a concrete cube for compressive strength test is _____. (50 mm, 100 mm, 150mm)	
(b)	(i) What is the role of calcium chloride and gypsum in the reaction of cement?	02
	(ii) Explain different types of slump with sketch only.	02
Q.2	(a) List the factors affecting the workability of concrete and explain any four out of them.	07
	(b) Define nominal mix concrete and design mix concrete. Describe step by step procedure of IS method of mix design.	07
	OR	
	(b) State factors affecting Compressive strength of concrete and explain any four in detail.	07
Q.3	(a) Differentiate between setting and hardening of cement.	03
	(b) Define Durability. Explain its significance.	04
	(c) Describe the test for determining initial and final setting time of cement. Give IS requirements for setting time for OPC.	07
	OR	
Q.3	(a) Write short note on chloride attack.	03
	(b) Write short note on Bulking of sand.	04

- (c) Explain the factors affecting Permeability. 07
- Q.4** (a) Write short note on polymer concrete. 07
- (b) Explain ultrasonic pulse velocity test. 07
- OR**
- Q.4** (a) Write short note on cold weather concreting. 07
- (b) List various methods of concreting under water and explain 'tremie' method. 07
- Q.5** (a) List factors affecting the choice of mix design. 03
- (b) Explain importance of plasticizers in concrete. 04
- (c) Define segregation of concrete. Explain the factors affecting it. 07
- OR**
- Q.5** (a) Define: (i) Mean (ii) Variance (iii) Range. 03
- (b) Explain importance of grading of aggregates. 04
- (c) Explain quality control of concrete and factors affecting it. 07
