Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - SEMESTER–IV • EXAMINATION – WINTER 2013

Subject Code: X40602 **Date: 05-12-2013**

Subject Name: Concrete Technology

Time: 02.30 pm - 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.**

Q.1 (a) Define Standard Consistency of Cement. Explain the test procedure to find the same and also state its importance. **07**

(b) Explain the Structure of the Hydrated cement. **07**

Q.2 (a) Give the detailed classification of the aggregates. **07**

(b) List out the raw materials required for making cement. Explain any one process of manufacturing of cement in detail. **07**

OR

(b) Enlist the Bogue's compounds. Explain the role of each compound in hydration of cement **07**

Q.3 (a) Discuss the various moisture conditions of aggregates. Explain its effects on the concrete mix **07**

(b) Define Workability of concrete. Explain the various factors that influence workability **07**

OR

Q.3 (a) Define Fineness Modulus. Find the fineness modulus of the aggregates for the given sieve analysis result **07**

IS sieve size	80	40	20	10	4.75	2.36	1.18	600	300	150	Lower than 150
Weight retained kg	0	0	6	5	4	-	-	-	-	-	-

(b) Explain any one test on aggregates in detail **07**

Q.4 (a) Briefly explain the quality of mixing water to be used for preparation of concrete. **07**

(b) Define the following: **07**

1. Gel water
2. Bound water
3. Maturity of concrete
4. Gel –space ratio
5. Creep
6. Bulk Density
7. Specific gravity

OR

Q.4 (a) Explain various Laboratory and Physical tests conducted on cement. Explain the test procedure to determine the compressive strength of cement **07**

Q.4 (b) Define Non Destructive testing of Concrete. Explain any one NDT in **07**

detail

Q.5	**(a)**	Why do we need to cure the concrete. Explain various methods of curing of concrete.	**07**
	(b)	Write down the various steps of Concrete mix design as per IS method	**07**

OR

Q.5	**(a)**	Write short notes on the following (any four)	**14**

I. Fly-ash as an admixture
II. Alkali – aggregate reaction
III. Causes of cracks in concrete structures
IV. Fibre reinforced concrete
V. Factors affecting the durability of concrete
VI. Grading of aggregates
VII. Segregation and Bleeding
VIII. Destructive tests on hardened concrete

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