Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC– SEMESTER IV– • EXAMINATION – SUMMER - 2016

Subject Code:X40602 **Date:19/11/2016**

Subject Name: Concrete Technology

Time:02:30 PM to 5:00 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 Answer the following in Short. (Any Seven) **14**

1. Name the chemical reaction that occurs in concrete.
2. Differentiate between Gel water and Bound water.
3. Define Curing of Concrete.
4. Define 28th day strength of Concrete.
5. What are the details mentioned on any Cement Bag.
6. Name the Test methods to determine the Workability of concrete.
7. Mention the different types of specimens along with their dimensions, used for testing hardened concrete.
8. Name any three Non-Destructive Test Methods.
9. Define Durability of Concrete.

Q.2 **(a)** Define Standard Consistency of Cement. Explain its significance and procedure to determine it. **07**

(b) Enlist various advantages and disadvantages of Concrete as a building material. Mention ingredients that make concrete. **07**

OR

(b) Define Fineness Modulus. Calculate the Fineness Modulus for the given Sieve Analysis Data performed on the Fine aggregates. **07**

IS Sieve Size	10 mm	4.75 mm	2.36 mm	1.18 mm	600 micron	300 micron	150 micron
Weight retained in gms	0	10	50	50	95	175	85

Q.3 **(a)** Explain in detail the Manufacturing process of Cement by means of a flow chart. **07**

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

OR

Q.3 **(a)** Explain in details various methods of Placing and Curing Concrete. **07**

(b) Describe in detail test methods of Aggregate Impact Value and Aggregate Crushing value test to determine the Physical Strength of aggregates. **07**

Q.4 **(a)** List down the steps involved in Mix Design of Concrete in accordance with IS 10262:2009. **07**

(b) Enlist the various signs of deterioration/distress in concrete structures. Explain Permeability and porosity of concrete. **07**

OR

Q.4	**(a)**	List down the various types of Special Concrete. Explain any one in detail.	**07**
	(b)	Differentiate Admixture and Additive. Write a short note on any one type of Admixture and its field applications.	**07**
Q.5	**(a)**	Describe in detail the test procedure to determine the Compressive Strength and Tensile strength of Hardened Concrete.	**07**
	(b)	Define Non-destructive testing of concrete. Explain Rebound Hammer test and Ultra Sonic Pulse velocity method in detail.	**07**

OR

Q.5 Differentiate the following: **14**

1. Concrete and Mortar
2. Fine aggregate and Coarse Aggregate
3. Setting and Hardening of Cement
4. Initial Setting time & Final setting time of cement
5. Bulk Density and Unit Weight
6. Nominal Mix and Design Mix
7. Carbonation and Corrosion