Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER II (OLD) – • EXAMINATION – SUMMER 2016

Subject Code: 1722009 **Date:21/05/2016**

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.**

Q.1 **(a)** Give the flow chart for dry process of manufacture of cement. **07**

(b) Enlist the various physical properties of Portland Cement. Explain compressive strength test of cement. Write I S requirement for compressive strength at 3,7,and 28 days for O P C cement. **07**

Q.2 **(a)** Explain effect of impurities in water. What is the permissible limits of chlorides and suspended matter in water for making concrete as per IS 456-2000. **07**

(b) Explain physical properties of the coarse aggregates and classification based on shape and texture. **07**

OR

(b) What is fineness modulus? Find the fineness modulus for the given sample of aggregates and give its significance as per the result. What is maximum size of aggregate. **07**

Sieve size.	Mass retained.(in grams)
80mm	00
40mm	00
20mm	90
10mm	820
4.75mm	90

Q.3 **(a)** Define workability and the factors affecting it. **07**

(b) What are Superplasticizers? What are the advantages of using them in concrete? Give its different application where it is used. **07**

OR

Q.3 **(a)** Describe split cylinder test of concrete. **07**

(b) Enlist the various Nondestructive testing performed on concrete and describe ultrasonic pulse velocity test. **07**

Q.4 **(a)** Discuss various aspects of durability of concrete. What measures are taken by IS code to conserve durable structure. **07**

(b) State the steps involved in manufacturing of concrete and explain the batching process. **07**

OR

Q.4 **(a)** Distinguish between following **07**

Chemical admixture – Mineral admixture

Low heat cement – Sulphate resisting Cement

(b) Explain the factors influencing the choice of mix design. **07**

Q.5	**(a)**	Write short note on Alkali aggregate reaction.	**07**
	(b)	Calculate the gel space ratio of a sample of concrete made with 600 gm of cement with 0.50 W/C ratio, on full hydration and at 60 percent hydration. Also calculate the theoretical strength of concrete in both the cases.	**07**

OR

Q.5	**(a)**	Answer the following in one or two sentences	**14**

- What does the shear slump indicate?
- Write sizes of cubes used in compressive strength of cement and concrete. Give correlation between strength of cubes and cylinders
- Define elongation index.
- How A/C ratio affect the workability of concrete.
- What is design mix and what is nominal mix.
- Define maturity of concrete
- What is flexural strength of concrete grade M30.

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