Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER– II(Old course) • EXAMINATION (Remedial) – WINTER- 2015

Subject Code: 1722009 **Date: 15/12/2015**

Subject Name: Concrete Technology

Time:2:30 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	**(a)**	What is the oxide composition of ordinary portland cement? What is lime saturation factor and its importance .	**07**
	(b)	What are the physical properties of ordinary portland cement 53 Grade.	**07**
Q.2	**(a)**	Write the IS recommended guidelines for a design a concrete mix for a reinforced concrete structure (by volume as well as by mass)	**07**
	(b)	How will you classify aggregates on the basis of size, shape, texture and origin	**07**
		OR	
	(b)	Enlist the tests on hardened concrete those you have performed in the laboratory and explain any one in detail.	**07**
Q.3	**(a)**	Write applications of any two types of cement as given below: (i) Quick Setting Cement. (ii) Portland Pozzolanic Cement. (iii) White Cement	**07**
	(b)	Calculate the gel/space ratio and theoretical strength of sample of concrete with 500 gm of Cement with o.6 W/C ratio on full hydration.	**07**
		OR	
Q.3	**(a)**	Estimate the appropriate compressive strength of a cube of concrete having a compressive load of 50 KN at failure.	**07**
	(b)	What is Non destructive testing. Enlist different methods of NDT methods of Concrete and explain Rebound hammer test in detail.	**07**
Q.4	**(a)**	Define workability. Enlist the different methods of performing workability tests in laboratory	**07**
	(b)	State the steps involved in manufacturing of concrete and explain any one in detail.	**07**
		OR	
Q.4	**(a)**	Discuss the various curing methods performed on concrete.	**07**
	(b)	How can we achieve High Strength Concrete and what are its advantages ?	**07**
Q.5	**(a)**	Define maturity of concrete. Lab experiment conducted at Thane on a particular mix showed a strength of 32.0 MPa for fully matured concrete. Find whether form work can be removed for an identical concrete placed at Kashmir at the age of 15 days, when the average temperature is 5ºC if the concrete is likely to be subjected to a stripping stress of 25.0 MPa. (Take constants A & B are 21 & 61 respectively)	**07**
	(b)	What are mineral and chemical admixtures? Name any four admixtures.	**07**
		OR	
Q.5	**(a)**	What are the factors affecting strength of concrete. Discuss the various theories affecting the strength of concrete.	**07**
	(b)	Design strength of concrete mix is always higher than the strength prescribed by a structural engineer. Why?.	**07**