

GUJARAT TECHNOLOGICAL UNIVERSITY**M.E –IIst SEMESTER–EXAMINATION – JULY- 2012****Subject code: 1722009****Date: 14/07/2012****Subject Name: Concrete Technology****Time: 10:30 am – 13:00 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) State the procedures for manufacture of cement and describe any one in detail. **07**
 (b) State the major compounds of cement & the importance of each in detail. **07**
Q.2 (a) State the different tests on cement & describe any one in detail. **07**
 (b) State any five different types of cement & describe any one in detail with all respect. **07**

OR

- (b) State different types of admixtures & describe any one in detail with all respect. **07**
Q.3 (a) Define workability & which are the factors affecting workability & describe any one in detail. **07**
 (b) Which are the tests on workability & explain any one in detail. **07**

OR

- Q.3** (a) State the steps for manufacturing of concrete & explain any one in detail. **07**
 (b) Define curing. State the different methods of curing & describe any one in detail. **07**
Q.4 (a) Define strength & stiffness of concrete. State the tests on hardened concrete & describe any one in detail. **07**
 (b) State the factors affecting the strength of concrete & describe any one in detail. **07**

OR

- Q.4** (a) Which are the different NDT & Destructive tests on concrete & explain Rebound Hammer Test in detail. **07**
Q.4 (b) Describe the effects of types of aggregates, grading of aggregates & surface texture of aggregates on fresh & hardened concrete. **07**
Q.5 (a) Design the concrete mix by I S Recommended guide lines by using I S 10262 by mass. **07**

Characteristic strength of concrete = 20N/mm^2
 Type of aggregates = crushed angular
 Max^m size of aggregates = 20 mm
 Grade of FA = Zone II
 Workability = 0.8 CF
 Type of exposure = Mild
 Type of cement = OPC 53 grade

	OPC 53	Fine aggregates	Coarse aggregates
Specific gravity	3.15	2.6	2.9
Bulk density	1440 kg/mm ³	1700 kg/mm ³	1600 kg/mm ³

- (b) State the chemical compounds of cement, its basic equation & hydration of cement. **07**

OR

- Q.5** (a) Design the concrete mix by I S Recommended guide lines by using I S 10262 by volume. **07**
 Characteristic strength of concrete = 30N/mm^2
 Type of aggregates = crushed angular
 Max^m size of aggregates = 20 mm
 Grade of FA = Zone I
 Workability = 0.82 CF
 Type of exposure = Moderate
 Type of cement = OPC 53 grade

	OPC 53	Fine aggregates	Coarse aggregates
Specific gravity	3.15	2.6	2.9
Bulk density	1440 kg/mm ³	1700 kg/mm ³	1600 kg/mm ³

- (b) Which are the physical requirements of cement & different uses of PPC & RHC. **07**
