

Code: CE4T1

**II B.Tech - II Semester – Regular Examinations – May 2016**

**CONCRETE TECHNOLOGY  
(CIVIL ENGINEERING)**

**NOTE: IS10262 -2009 (pages 1,2,3 only) has to be provided for answering 6<sup>th</sup> Question.**

Duration: 3 hours

Max. Marks: 70

**PART – A**

Answer *all* the questions. All questions carry equal marks

11x 2 = 22 M

1.

- a) Write Relationship between Cube and Cylinder Strength.
- b) Define transition zone in the structure of the hydrated cement.
- c) List the bouges compounds.
- d) What are the two compounds formed after the hydration of cement?
- e) What is the value of total dissolved solids in water used for making concrete?
- f) What is Concrete?
- g) What is Segregation?
- h) What is Mix design?
- i) Define Admixtures.
- j) What is Curing?
- k) Write any two advantages of using NDT.

## PART – B

Answer any **THREE** questions. All questions carry equal marks.

3 x 16 = 48 M

2.

a) Classify the aggregates according to size, sources & in accordance with unit weight. 8 M

b) What is fineness modulus and what is its significance in testing the quality of aggregates? 8 M

3.

a) What is meant by workability? Explain factors affecting workability. 8 M

b) Write step by step procedure as per I.S.4031 to determine Initial Setting Time of cement. 8 M

4.

a) List any five different NDT Methods available. 8 M

b) What is FRC? How it is made? 8 M

5.

a) What is creep and shrinkage? Discuss various factors affecting creep and shrinkage. 8 M

b) Explain various methods of curing used in concreting practice in detail. 8 M

6. DESIGN CONCRETE MIX FOR – M50 GRADE  
CONCRETE FOR THE FOLLOWING DATA Grade  
Designation = M-50, Type of cement = O.P.C-43 grade,  
Brand of cement = Vikram ( Grasim ), Admixture = Sika  
[Sikament 170 ( H )]  
Fine Aggregate = Zone-II, Sp. Gravity of Cement = 3.15  
Sp. Gravity of Fine Aggregate = 2.61,  
Sp. Gravity of Coarse Aggregate (20mm) = 2.65  
Sp. Gravity of Coarse Aggregate (10mm) = 2.66  
Minimum Cement (As per contract) = 400 kg / m<sup>3</sup>  
Maximum water cement ratio (As per contract) 0.45, Slump  
120mm. 16 M