

**B.Tech. Civil (Construction Management)**

**Term-End Examination**

**December, 2010**

02319

**ET-581(A) : TESTING FOR QUALITY CONTROL**

*Time : 3 hours*

*Maximum Marks : 70*

*Note : Attempt any five questions. All questions carry equal marks.*

1. (a) Fill in the blanks in the following :  $6 \times 1\frac{1}{2} = 9$
- (i) The cement paste must be prepared and filled in the vicat's mould within \_\_\_\_\_ minutes.
  - (ii) The percentage of weight of particles whose greatest dimension (length) is greater than \_\_\_\_\_ times their mean dimension, is called Elongation Index of aggregate.
  - (iii) The aggregate crushing value of coarse aggregate should not be more than \_\_\_\_\_ per cent for concrete used for other than wearing surface.
  - (iv) The minimum number of samples as per requirement of quality control shall be \_\_\_\_\_ if quantity of concrete is more than  $5 \text{ m}^3$  and less than  $15 \text{ m}^3$
  - (v) For determination of modulus of rupture of concrete beams, IS: 516 specifies \_\_\_\_\_ loading.
  - (vi) \_\_\_\_\_ method is used to determine sulphate content in water.

- (b) Explain briefly any two of the following :
- (i) Bulking of sand phenomena  $2 \times 2\frac{1}{2} = 5$
  - (ii) Failure of concrete specimens
  - (iii) Soundness test for aggregates

2. Differentiate between the following (any four) :  $4 \times 3\frac{1}{2} = 14$

- (a) Aggregate Impact Value and Aggregate Abrasion Value.
- (b) Cube strength and cylindrical strength of concrete.
- (c) Ring tension test and double punch test.
- (d) Parallel to grain and perpendicular to grain test of timber.
- (e) Indentation and Rebound principles of determining surface hardness.

3. Describe the following (any four) :  $4 \times 3\frac{1}{2} = 14$

- (a) Ten percent fines value test.
- (b) Determination of water Absorption for bricks.
- (c) Flakiness Index of aggregates.
- (d) Standard pull out test.
- (e) Significance of specific surface of cement in regard to the characteristics of the cement.

4. (a) Describe the procedure to determine Initial setting time. Discuss the importance of the test also.  $5+2$

- (b) What is unsoundness of cement ?  $2+5$   
Describe Le-Chatelier Method to determine the soundness of cement.

5. (a). Define workability of concrete mix. Describe Slump Test to determine the workability. Discuss the limitation of this also.  $2+5+2=9$
- (b) Discuss the factors affecting compression strength of concrete. 5
6. (a) Why its necessary to carry out tests on water to be used for making and curing of concrete. 4
- (b) Determination of flexural strength of concrete. 6
- (c) Importance of test core of concrete taken from actual structure . 4
7. Write short notes on any Four of the following :  $4 \times 3\frac{1}{2} = 14$
- (a) Magnetic methods for testing of Hardened concrete.
- (b) Properties of normal distribution curve.
- (c) Segregation and bleeding of concrete.
- (d) Efflorescence Test on bricks.
- (e) Capping of specimen for testing the concrete cylinder.
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