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B.Tech. Civil (Construction Management)

Term-End Examination

December, 2011

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 : **6x1½=9**

(i) For determination of initial setting time of cement paste the standard needle penetrate's through vicat's mould to _____ mm from the top of the mould.

(ii) _____ method is used to determine sulphate content in water.

(iii) The percentage by weight of particles whose least dimension (thickness) is less than _____ times their mean dimension is called as flakiness Index of aggregate.

(iv) The minimum number of samples as per requirement of Quality Control shall be _____ if quantity of concrete is up to $5m^3$.

(v) The Aggregate crushing value of coarse aggregates should not be more than _____ percent for concrete used for wearing surfaces.

(vi) Average loss of weight after 10 cycles should not exceed _____ percent when tested with sodium sulphate solution.

(b) Explain briefly *any two* of the following : **2x2½=5**

(i) Bulk density of aggregate

(ii) Mortar bar expansion test

(iii) Importance of grading of aggregate in a concrete mix.

2. Differentiate between the following (any four)

(a) Aggregate impact value and aggregate crushing value. **4x3½=14**

(b) Parallel to grain and perpendicular to grain tests of timber.

(c) Double punch test and Ring tension test.

(d) Indentation and rebound principles of determining surface hardness.

(e) Non-destructive and destructive testing methods for concrete.

3. (a) Discuss briefly procedure to determine the compressive strength of cement. 7

(b) Describe the procedure to check the soundness of cement and discuss the utility of the test. 7

4. Describe the following *(any Four)* : **4x3½=14**

(a) Angularity number of aggregate.

(b) Various categories of efflorescence observed in Effloresence Test of bricks.

(c) Advantage and limitation of Lok Test.

(d) Ultrasonic Pulse velocity test.

(e) Heat of Hydration

5. Write short notes on ***any Four*** of the following : **4x3½=14**

(a) Los Angeles Abbrasion Test

(b) Properties of normal distribution curve

(c) Capping of specimen for testing the concrete cylinder.

(d) Determination of corrosion of Reinforcement Bar.

(e) Water absorption test for coarse aggregate

6. (a) Discuss compaction factor test to determine the workability of concrete. **6+5+3**

(b) Discuss factors affecting workability of concrete.

(c) Discuss the effect of height /diameter ratio on the strength.

7. (a) Discuss role of an admixture in concrete.

(b) Discuss the significance of curing in concrete. **4+4+6**

(c) Describe the procedure to determine compressive strength of concrete.