

B.Tech. Civil (Construction Management)

Term-End Examination

00465

December, 2014

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) To determine the consistency of cement paste by Vicat's apparatus, the standard plunger should penetrate to _____ from the top of the mould.
 - (ii) Average loss of weight of aggregate after 10 cycles should not exceed _____ percent when tested with magnesium sulphate.
 - (iii) The height of the mould for the slump test is _____ mm.
 - (iv) _____ method is used to determine the sulphate content in water.

(v) Flakiness Index of aggregate is the percentage of weight of articles whose least dimension (thickness) is less than _____ times of their mean dimension.

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

(b) Explain briefly any **two** of the following : $2 \times 2 \frac{1}{2} = 5$

- (i) Characteristic strength of concrete
- (ii) Importance of grading of aggregate in a concrete mix
- (iii) Significance of specific surface of cement

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

- (a) Destructive and Non-destructive testing methods for concrete
- (b) Initial and Final setting of cement
- (c) Perpendicular to grain and Parallel to grain tests of timber
- (d) Aggregate Abrasion and Attrition
- (e) Ring tension test and Double punch test

3. (a) Define the consistency of standard cement paste. Describe the procedure to obtain normal consistency of a cement sample. Discuss the utility of this test. 7
- (b) Define the soundness of cement. Describe any one method of determining the soundness of cement along with a neat sketch. 7
4. Write short notes on any *four* of the following : $4 \times 3 \frac{1}{2} = 14$
- (a) Capping of specimen for testing the concrete cylinder
- (b) Water absorption test for aggregate
- (c) Estimation of deleterious material and organic impurities in an aggregate sample
- (d) Various categories of efflorescence reported in the results of efflorescence test on bricks
- (e) Los Angeles Abrasion Test
5. (a) Discuss the factors affecting compressive strength of concrete. 7
- (b) Discuss Vee-Bee Consistency Test to determine the workability of concrete. 7

6. Describe any *four* of the following : $4 \times 3 \frac{1}{2} = 14$

- (a) Aggregate crushing value
- (b) Rebound principle for surface hardness test
- (c) Properties of normal distribution curve
- (d) Cylinder splitting tension test
- (e) Heat of hydration

7. (a) Define segregation and bleeding of concrete. Discuss the significance of compaction on compressive strength of concrete. 7
- (b) Describe the procedure to determine the compressive strength of cement. 7
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