DIPLOMA IN CIVIL ENGINEERING DCLE(G) (DCLEVI)

00493

Term-End Examination
December, 2012

BCE-044 : CONCRETE TECHNOLOGY

Time : 2 hours   *Maximum Marks : 70*

Note : *Answer* **any five** *questions including question number 1 which is* **compulsory.**

1. (a) Answer **any two** of the following in brief (2-3 lines only) :   2x2=4

    (i)   Describe batching of concrete ingredients.

    (ii) What is gunite?

    (iii) What is meant by mass concrete?

    (b) Fill in the blanks (attempt **any four**) :   4x1½=6

    (i)   Standard consistency of cement is determined by_____ approaches.

    (ii) One bag of cement is _____ kg.

    (iii) The specified compressive strength of concrete is obtained from cube tests at the end of _____days.

    (iv) Slump is measured by_____ test.

    (v)   Cellular concrete is also called as _____.

(c) Select the correct option. (attempt *any four*)

4x1=4

(i) Initial setting of cement is caused due to (tri-calcium aluminate / tri-calcium silicate).

(ii) For compressive strength test of cement (standard / ordinary) sand is used.

(iii) Flat slope of the grading curve indicates (lesser / larger) contribution of the particles of that size range.

(iv) Cement should be kept (near moisture / away from moisture).

(v) Segregation is (desirable / not desirable) for the strength of concrete.

2. (a) Differenciate between terms in *any two* of the following : 2x4=8

(i) Dry process and wet process of manufacture of cement

(ii) Hand mixing and machine mixing

(iii) Expansion joint and contraction joint

(b) Define *any two* of the following : 2x3=6

(i) Elongation index

(ii) Final setting time

(iii) Particle size distribution curve

3. (a) What are the precautions to be taken for proper storage of cement?   **8**

   (b) Explain soundness test of cement.   **6**

4. (a) Explain aggregate abrasion value test.   **8**

   (b) Describe bulking of sand with a neat sketch showing its relationship with moisture content.   **6**

5. (a) Explain slump cone test with a labelled sketch.   **8**

   (b) Enlist various factors affecting workability of concrete. Explain the role of any one factor.   **6**

6. (a) Define compaction. Explain various methods of compaction of concrete.   **8**

   (b) Enlist various methods of curing of concrete and explain any one.   **6**

7. Write short notes on *any four* of the following :

                                                      $4 \times 3\frac{1}{2} = 14$

   (a) Heat of hydration of cement

   (b) Fineness Modulus

   (c) Pre-stressed concrete

   (d) Trial and error method

   (e) Colcrete

   (f) Importance of w/c for concrete