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BCE-044

DIPLOMA IN CIVIL ENGINEERING DCLE(G) (DCLEVI)

Term-End Examination

December, 2013

BCE-044 : CONCRETE TECHNOLOGY

Time : 2 hours *Maximum Marks : 70*

Note : *Answer **any five** questions including question number **1** which is **compulsory**. **Use** of scientific calculator is **permitted**.*

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

(i) Differentiate between mild steel and tor steel.

(ii) Why is rapid hardening cement finely ground ?

(iii) What is meant by 'Mzo' ?

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

(i) Vee-Bee test is used to determine _____of concrete mix.

(ii) _____ sand is used for determining the compressive strength of cement.

(iii) Compaction is the process adopted for expelling the _____.

(iv) BIS specifies that the characteristics strength of concrete is to be measured on _____day.

(v) _____ apparatus is used to determine soundness of cement.

(c) Select the correct option (**any four**) : **4x1=4**

(i) Fineness modulus gives an idea about (size/ shape) of the aggregate.

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

(iii) Road Note no.4 is the method of desinging (the road / the concrete mix)

(iv) Bleeding is (desirable / not desirable) for good concrete.

(v) Concrete is suitable for compaction by vibrator if it is (dry / plastic).

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

(i) True slump and shear slump.

(ii) Hand mixing and machine mixing

(iii) Accelerator and Retarder admixtures

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

(i) Consistency of cement

(ii) Flakiness index

(iii) Fineness modulus

3. (a) Describe the procedure of determining the initial and final setting time of cement in the laboratory. 8

(b) Explain the procedure of manufature of cement. 6

4. (a) Define bulking of sand. Describe the bulking phenomenon with neat sketches. 8

(b) Explain precautions to be observed during transportation of concrete. 6

5. (a) Define workability. Describe slump test in detail. 8

(b) Explain Abram's water - cement ratio law with the help of a neat sketch. 6

6. (a) Enlist different methods of curing. Explain any two of them in brief. 8

(b) Define framework. Draw the sketches of framework for a wall and a column. 6

7. Write short notes on **any four** of the following : **4x3½=14**

(a) Pre - stressed concrete

(b) Cement compounds

(c) Trail and error method of mix design

(d) Hot weather concreting

(e) Ready - mix concrete

(f) SSD condition of aggregate