

**DIPLOMA IN CIVIL ENGINEERING DCLE(G)  
(DCLEVI)**

01184

**Term-End Examination  
June, 2013**

**BCE-044 : CONCRETE TECHNOLOGY**

*Time : 2 hours*

*Maximum Marks : 70*

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

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1. (a) Answer **any two** of the following in brief (2 - 3 lines only) : 2x2=4
- (i) What is meant by compaction of concrete ?
  - (ii) What do you understand by buttering the mixer ?
  - (iii) Differentiate between R.C.C. and P.C.C.
- (b) Fill in the blanks ( **any four** ) by using correct option, given at the end. 4x1½=6
- (i) The setting of cement is due to chemical reaction between cement and water called as \_\_\_\_\_. (hydration/ Displacement reaction)

- (ii) \_\_\_\_\_ cement is used in large mass concrete works. ( High alumina cement / low heat cement )
- (iii) Initial setting time of OPC is \_\_\_\_\_. ( 30 min / 5 hours )
- (iv) Aggregate is called as \_\_\_\_\_ when its greatest dimension is reasonably large relative to its mean dimension. ( Flaky /Elongated)
- (v) The final operation of finishing is called as \_\_\_\_\_. ( mixing / trowelling)
- (c) Select the correct option ( *any four* ) :      **4x1=4**
- (i) The size of the cube to measure the compressive strength of cement is (  $7.06 \times 7.06 \times 7.06$  mm /  $7.06 \times 7.06 \times 7.06$  cm /  $7.06 \times 7.06 \times 7.06$  m)
- (ii) Concrete achieves ( 40/67/100 ) percentage strength after 28 days curing.
- (iii) Vibrators should be penetrated in concrete in ( verticle / horizontal / incline ) direction.
- (iv) The weight of one bag of cement is ( 35 / 40 / 50 ) kg.
- (v) The ( Partially seasoned / fully seasoned / green ) timber is most satisfactory for use of framework.

2. (a) Differentiate between *any two* of the following :  $2 \times 3 = 6$
- (i) Expansion joint and contraction joint.
  - (ii) Internal vibrator and surface vibrator
  - (iii) Weigh batching and volume batching
- (b) Define the following (*any two*).  $2 \times 4 = 8$
- (i) Fineness modulus
  - (ii) Colcrete
  - (iii) Formwork
3. (a) Enlist types of cement. Explain any two in brief. 6
- (b) Explain dry process of manufacturing of cement. 8
4. (a) Explain bulking of sand with a neat sketch. 6
- (b) Enlist different tests on aggregate and explain, in brief, aggregate crushing value test. 8
5. (a) Define workability. Explain any two factors affecting workability. 6
- (b) Explain slump test with sketches. 8
6. (a) Explain precautions to be taken while storing cement. 6
- (b) Define curing. Explain any two methods in brief. 8

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

- (a) RMC **4x3½=14**
  - (b) Ferro - cement
  - (c) Roller compacted concrete
  - (d) Yield of concrete
  - (e) Trial and error method of mix design.
  - (f) Hot weather concreting.
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