

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

Term-End Examination

00263

June, 2018

BCE-044 : CONCRETE TECHNOLOGY

Time : 2 hours

Maximum Marks : 70

Note : *Question no. 1 is compulsory. Answer any four from the remaining.*

1. Choose the correct answer : **7×2=14**

- (a) During the manufacturing process of Portland cement, gypsum or Plaster of Paris is added to
- (i) increase the strength of cement.
 - (ii) modify the colour of cement.
 - (iii) adjust setting time of cement.
 - (iv) reduce heat of hydration.
- (b) An excess of free lime in Portland cement
- (i) results in an increase in strength.
 - (ii) increases the initial setting time.
 - (iii) causes unsoundness in the product.
 - (iv) None of the above

- (c) Bulking of sand is the
 - (i) compacting of the sand
 - (ii) increase in the volume of sand
 - (iii) segregating sand of particular size
 - (iv) All of the above

- (d) If sea water is added for preparing concrete
 - (i) it will cause efflorescence
 - (ii) it may corrode the reinforcement
 - (iii) it will reduce the ultimate strength
 - (iv) All of the above

- (e) The empirical test used for assessing the workability of fresh concrete is
 - (i) the slump test
 - (ii) the compacting factor test
 - (iii) the Vee-Bee consistency test
 - (iv) All of the above

- (f) A compacting factor of 0.88 for a fresh concrete sample indicates a mix of
 - (i) high workability
 - (ii) medium workability
 - (iii) low workability
 - (iv) very low workability

- (g) Inert ingredient of concrete mix is
- (i) cement
 - (ii) aggregate
 - (iii) water
 - (iv) None of the above
2. (a) What are the advantages of using concrete ? 7
- (b) What performance requirements are to be satisfied by a good concrete in the plastic or green state and also the hardened state ? 7
3. (a) Discuss hydration of cements. 7
- (b) Enlist and explain the important physical properties of a cement. 7
4. (a) Define and explain the fineness modulus of aggregate. 7
- (b) What is gap grading ? Discuss the important features of gap graded aggregate. 7
5. (a) Explain the Los Angeles test to determine aggregate abrasion value. 7
- (b) Discuss the factors affecting workability of concrete. 7
6. (a) Discuss the factors causing variations in the quality of concrete. 7
- (b) What are the requirements of formwork ? Explain. 7

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

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

- (a) Nominal Mix and Design Mix of Concrete
 - (b) Bulking of Sand
 - (c) Guniting
 - (d) Water Cement Ratio and Compressive Strength of Concrete
 - (e) Admixtures
 - (f) Concreting in Hot Weather
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