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BCE-044

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

Term-End Examination, 2019

BCE-044 : CONCRETE TECHNOLOGY

Time : 2 Hours]

[Maximum Marks : 70

Note : Attempt any five questions. Question No. 1 is compulsory.

1. (a) Explain **any two** of the following in brief (in 2-3 lines only) : [2×2=4]
- (i) Aggregate crushing value
 - (ii) Initial setting time of cement
 - (iii) Fineness of cement
- (b) Fill in the blanks (attempt **any four**) : [4×1½=6]
- (i) Hydration of cement evolves _____.
 - (ii) For compressive strength of cement _____ sand is used.
 - (iii) Slump test determines _____ of concrete.

- (iv) Water-cement ratio affect the _____ of concrete.
- (v) Water absorption of aggregates increases with the _____ of aggregates.
- (c) Select the correct option (attempt **any four** :
[4×1=4]
- (i) Initial setting time of portland cement is 20 min / 30 min.
- (ii) In Fineness test of ordinary portland cement the residue on IS Sieve no 9 should not be more than 10% / 5%.
- (iii) The limiting value of abrasion value for concrete aggregate is 10% / 16%.
- (iv) The aggregate of size >4.75 mm are called fine aggregate / coarse aggregate.
- (v) Bulking is the property of fine aggregate / coarse aggregate.

2. (a) Differentiate between **any two** of the following terms : [2×4=8]
- (i) Compaction and curing of concrete
 - (ii) Nominal mix concrete and Design mix concrete
 - (iii) Weight batching and Volume batching of aggregates
- (b) Define **any two** of the following : [2×3=6]
- (i) Elongation Index of aggregate
 - (ii) Mass concrete
 - (iii) Workability of concrete
3. (a) Enlist different types of cements with their applications. [8]
- (b) Describe setting time test of cement. [6]
4. (a) Explain aggregate impact value test. [8]

- (b) Explain bulking of sand. [6]
5. (a) Explain slump test. [8]
- (b) Discuss various factors which influence workability of concrete. [6]
6. (a) How will you define the compressive strength of concrete ? Discuss factors influencing the strength of concrete. [8]
- (b) Discuss significance of water cement ratio in concrete. [6]
7. Write short notes on **any four** of the following : [4+3½=14]
- (a) Pre-Cast concrete
- (b) Fineness modulus
- (c) Steam curing
- (d) Compaction of concrete
- (e) Fibre reinforced concrete

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