

DIPLOMA IN CIVIL ENGINEERING
DCLE (G)/DCLEVI

Term-End Examination, 2019

BCE-044 : CONCRETE TECHNOLOGY

Time : 2 Hours

Maximum Marks : 70

Note : Question no. 1 is **compulsory** and in addition answer any other **four** questions.

1. (a) Explain **any two** of the following in brief : [2×2=4]
- (i) Impact value of aggregate
 - (ii) Fineness modulus
 - (iii) Compressive strength of cement
- (b) Fill in the blanks (attempt **any four**) : [4×1½=6]
- i. Unsoundness is generally expressed by expansion of cement paste by _____method.
 - ii. For determining the setting time of cement _____apparatus is used.



- iii. _____ is added to control the initial setting time of cement.
- iv. Slump is measured by _____.
- v. Strength of concrete is inversely proportional to _____.

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

[4×1=4]

- (i) Compaction increases / decreases the density of the concrete.
- (ii) The process hardening the concrete mixes by keeping its surface moist / dry for a certain period after compaction is called curing of concrete.
- (iii) Hand-mixing / Machine-mixing should be used for large work.
- (iv) C_3S hydrates more rapidly than C_2S and develops strength in concrete for first 7/28 days.

- (v) The first compound to react with water when mixed with water is C_2S / C_3A

2 (a) Differentiate between **any two** of the following terms : [2×4=8]

- (i) Hand-mixing and Machine-mixing
- (ii) Weight-batching and Volume-batching of aggregates
- (iii) Segregation and Bleeding of Concrete

(b) Define **any two** of the following : [2×3=6]

- (i) Workability
- (ii) Bulking of Sand
- (iii) Compaction of Concrete

3 (a) Enlist different chemical ingredients of cement. State the functions of various chemical ingredients of cement. [8]

(b) Explain consistency test of Cement. [6]

4 (a) Explain Aggregate abrasion value test. [8]

(b) With the help of neat curve, discuss the bulking of sand and its importance. [6]

- 5 (a) Discuss various factors affecting workability of concrete. [8]
- (b) Explain compaction factor test. [6]
- 6 (a) What is Curing ? What are the objectives of curing? State its importance and enlist different methods of curing. [8]
- (b) Write short note on Light Weight Concrete. [6]

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

[4×3½=14]

- (i) Gunite
- (ii) Design mix Concrete
- (iii) Pre-cast Concrete
- (iv) Quality control of Concrete
- (v) Form work.

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