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BCE-043

DIPLOMA IN CIVIL ENGINEERING
DCLE(G) / DCLEVI

Term-End Examination

00283

June, 2018

BCE-043 : CONSTRUCTION TECHNOLOGY – II

Time : 2 hours *Maximum Marks : 70*

Note : *Question no. 1 is* ***compulsory****. Answer any* ***four*** *questions from the remaining. All questions carry equal marks.*

1. Choose the correct alternative in each of the following questions : *7×2=14*

(a) The important test to be conducted on a stone used in docks and harbours is

(i) hardness test

(ii) workability test

(iii) weight test

(iv) toughness test

(b) For testing compressive strength of cement, the size of the cube used is

(i) 50 mm

(ii) 70·6 mm

(iii) 100 mm

(iv) 150 mm

(c) Which of the following is the purest form of iron ?

(i) Cast iron

(ii) Wrought iron

(iii) Mild steel

(iv) High carbon steel

(d) For good bonding in brick masonry

(i) all bricks need not be uniform in size

(ii) bats must be used in alternate courses only

(iii) the vertical joints in alternate courses should fall in plumb

(iv) cement mortar used must have surkhi as additive

(e) To make one cubic metre of 1 : 2 : 4 (by volume) concrete, the volume of coarse aggregate required is

(i) 0·95 m^3

(ii) 0·85 m^3

(iii) 0·75 m^3

(iv) 0·65 m^3

(f) Le Chatelier's device is used for determining the

(i) setting time of cement

(ii) soundness of cement

(iii) tensile strength of cement

(iv) compressive strength of cement

(g) Specific gravity for most of the building stones lies between

(i) 1·5 to 2·0

(ii) 2·0 to 2·5

(iii) 2·5 to 3·0

(iv) 3·0 to 3·5

2. (a) Define balance, movement, repetition, pattern, rhythm, emphasis, contract and space in relation to aesthetics, functions of a building design. 7

(b) Explain what tests are carried out for testing of

(i) cement,

(ii) concrete, and

(iii) pavement. 7

3. (a) Explain the steps for planning annual maintenance of MES assets. What role does staff of station HQ play in the preparation of maintenance of building ? 7

(b) Describe fire process and causes of fire accidents in buildings. Describe various methods of fire prevention and fire fighting. 7

4. (a) Explain scope of steel as building material. What are the advantages and disadvantages of steel ? Describe usual sections used as

(i) Compression members, and

(ii) Tension members. 7

(b) Explain natural and artificial methods of ventilation and air-conditioning of the building with a neat sketch. Also explain with a neat sketch, thermal insulation of roof. 7

5. (a) Explain applications of sheep's foot roller, smooth wheel roller, tandem roller and vibratory roller. 5

(b) What is asphalt ? Explain the various components and applications of hot mix plant with a neat sketch. 6

(c) List and explain the various trouble-shootings of various equipment used in construction industry. 3

6. (a) Explain with a neat sketch various ground improvement techniques for foundation. 7

(b) Explain various applications of bituminous compounds in building. 7

7. Write short notes on any ***four*** of the following : $4 \times 3\frac{1}{2} = 14$

(a) Universal Concrete Panel System

(b) Pile Foundation

(c) General Features of Acoustic Design

(d) Mobile Fire Fighting Systems

(e) Measurement Book (MB)
