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**BCE-045**

# DIPLOMA IN CIVIL ENGINEERING

## DCLE(G)/DCLEVI

## Term-End Examination

## June, 2019

### BCE-045 : CONSTRUCTION DRAWING

*Time : 2 Hours* *Maximum Marks : 70*

***Note :*** *(i) Part A is to be attempted on answer script and Part B on drawing sheet.*

*(ii) Use of calculator is allowed.*

*(iii) Assume suitable data wherever necessary.*

## Part–A

***Note :*** *Attempt any* ***five*** *questions from the following.*

1. Give the symbols for the following : 7×1=7

   (a) Wooden work

   (b) Earth work

   (c) Plaster

   (d) Indian type W. C.

(e) Kitchen sink

(f) Ceiling fan

(g) Bell push

2. (a) Which type of drawings are required for the construction of a civil engineering structure ? $3\frac{1}{2}$

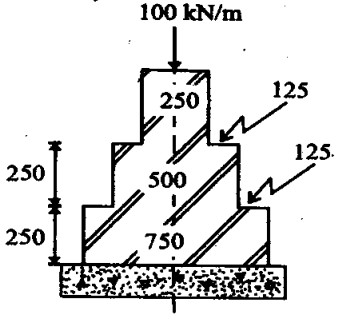
(b) Describe as to how a good drawing can be prepared. $3\frac{1}{2}$

3. (a) Discuss architectural aspects of a staircase. $3\frac{1}{2}$

(b) Sketch a bifurcated staircase. $3\frac{1}{2}$

4. Define an arch. What are various elements of a segmental arch ? Explain with the help of a neat sketch. 7

5. Design the concrete footing for a 250 mm thick wall carrying a load of 100 kN/m run (As shown in figure below). 7




Safe bearing capacity of soil = 110 kN/m$^2$

Angle of repose = 28°

Unit weight of soil = 17 kN/m$^3$

6. Write full form of any ***seven*** abbreviations given below : 7×1=7

   (a) WRT

   (b) APPROX

   (c) LHS

   (d) SCR

   (e) SPEC

   (f) C/C

   (g) CM

   (h) DRG

   (i) SYM

   (j) EXT

7. What are the main types of wooden joints ? Draw a tabled joint and explain framing joints. 7

## Part–B

***Note :*** *Attempt Question No. 8, which is compulsory and any one question from remaining, adopt suitable scale.*

8. Draw to a suitable scale the longitudinal section (L-Section) and two cross sections (one

at the mid span and other near the support) of a Simply Supported RCC rectangular beam with the help of the following data : 15

Size of beam = 300 mm × 600 mm

Bearing on wall = 300 mm

Clear span of beam = 4.50 m

Main reinforcement = 3 Nos. 20 mm $\phi$ (one bar bent up at span/7)

Anchor bar = 2 Nos. 12 mm $\phi$ at top

Vertical stirrups = 8 mm $\phi$ 2 legged @ 200 mm c/c

9. Draw to a suitable scale Sectional plan and sectional elevation of a square column with isolated footing from the following data : 20

Size of column = 400 mm × 400 mm

Depth below GL = 90 cm

Plinth level = 300 mm above GL

Height of column = 3.0 m

***Column reinforcement :***

Main reinforcement bar = 8 Nos 20 mm $\phi$

Lateral Ties = 8 mm $\phi$ @ 300 c/c

***Footing Details :***

Size of footing = 2.5 m × 2.5 m

Thickness at column face = 600 mm

Thickness at free end = 300 mm

Reinforcement = 12 mm $\phi$@ 200 mm c/c

(both way)

10. A single leaf fully glazed wooden door of size 1.20 m × 2.10 m with two glass panels inserts is provided in a drawing room : 20

(i) Draw the elevation of the door

(ii) Draw the sectional plan of the door