No. of Printed Pages : **4 + Drawing Sheet**

BCE-045

03803

Diploma in Civil Engineering DCLE (G)
DCLEVI
Term-End Examination
December, 2012

BCE-045 : CONSTRUCTION DRAWING

Time : 2 hours *Maximum Marks : 70*

Note : ***Part A*** *is to be attempted on answer script and* ***Part B*** *' on drawing sheet. Use of calculator is allowed. Assume suitable data wherever necessary*

PART - A

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

1. (a) Which types of drawings are required for the construction of a structure ? 3

   (b) Define scale. Mention the various catagories of scale with at least two examples of each. 4

2. Give the symbols for the following : 7

   (a) Single Leaf Single Swing Door

   (b) Single Leaf Double Swing Door

   (c) Double Sliding Door

   (d) Revolving Door

   (e) Wood in Cross Section

   (f) Wood in Horizontal Section

   (g) Natural Stone.

3. What are the different types of loads which are transmitted through foundation to soil below ? How these loads are accounted for in the design of foundation ? 7

4. Show through neat sketches the critical sections for bending moment, shear and punching shear for isolated footings. 7

5. (a) Define an Arch. 2

(b) Define the following : 5

(i) Vussiors (ii) Extrados

(iii) Spandril (iv) Piers

(v) Intrados

6. Define a false ceiling. Mention various types of false ceiling and explain the features of any one by means of neat sketches. 7

7. Show by means of line diagrams the various types of wooden roof trusses and mention the spans upto which each one can be used. 7

8. Why sometimes curved roofs are preferred over flat roofs ? 7

PART - B

Attempt question No.9 which is compulsory and any one question from the remaining. Adopt suitable scale.

9. Prepare the structural drawing for the foundation of a brick masonary internal wall with cement concrete base. The design data is given below : 15

Thickness of wall = 375 mm

Width of footing = 1.525 m

Depth of footing below G.L. = 1.2 m

Plinth level above G.L. = 0.6 m

10. A combined rectangular footing with strap beam for two R.C.C. Columns spaced 5m centres apart is designed. Column A is 350 mm square and carries a load of 750 kN and is located on a property line. Column B is 400 mm square and carries a load of 1200 kN. The design data is given below :

- Width of footing = 1.5 m
- Length of footing beyond the centre of column B = 1.2 m
- Overall depth of footing = 250 mm
- Main tensile reinforcement of footing = 16ϕHYSD bars @ 180 c/c
- Distribution reinforcement of footing = 10ϕHYSD bars @ 200 c/c

Size of Strap Beam :

- Width of beam = 500 mm
- Overall depth of beam = 1000mm
- Main tensile reinforcement of beam = 6 Nos
- 22 ϕ HYSD bars
- Main tensile reinforcement in cantilever portion of the beam = 3 Nos - 22 ϕ HYSD bars
- Shear reinforcement in the beam = 10 ϕ four legged stirrups @ 180 c/c upto 1.8m at each end and in the cantilever portion. In the remaining length of beam nominal shear reinforcement.

Prepare the structural drawing for the combined rectangular footing as mentioned below :

(a) Longitudinal section of the strap beam. **10**

(b) Cross section of the footing. **10**

11. A single leaf fully pannelled door of size 1.2 m × 2.1 m with two plywood panel inserts is provided in the bed room of some residential apartments. Prepare the following :

(a) Elevation of pannelled door. **12**

(b) Sectional plan of panetted door. **8**
