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BCE-045

00574

Diploma in Civil Engineering

Term-End Examination

December, 2010

BCE-045 : CONSTRUCTION DRAWING

Time : 2 hours *Maximum Marks : 70*

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

PART-A

Attempt *any five* questions from the following :-

1. Describe a standard layout of a drawing sheet for complete visualisation of the drawing. 7

2. Explain considerations required for preparing a good drawing briefly. 7

3. Design the foundation, for a 250mm thick brick masonary wall carrying a load of 120kN/m, run with cement concrete base. Use the following data. 7

Safe Bearing Capacity of soil = 100 kN/m^2

Angle of repose of the soil = 30^o

Unit weight of soil = 20 kN/m^3

4. Write general specifications regarding reinforcement for a combined footing. 7

5. Where do we require wooden widening joints? Why are these joints used ? 7

6. Explain, with the help of neat sketches, various types of staircase. 7

7. Enlist various types of wooden roof truss. Show *any two* by means of line sketches and name a various members of each truss. Mention the maximum recommended span in each case. 7

8. Explain why curved roofs are sometimes prefered to flat R.C.C. roofs ? 7

PART-B

Attempt quenstion number *9* which is ***compulsory*** and ***any one*** question from the remaining portion in this part. Adopt a suitable scale.

9. Draw sectional elevation of a rectangular R.C.C. footing of size 2.0 × 2.2m for a rectangular R.C.C. column of size 300 × 450mm provided at a depth of 1.4m below the ground for the following data. 20

- Longitudinal bars of the column 8 – 20 ϕ HYSD.
- Lateral ties of the column 8 ϕ @ 250mm c/c.
- Overall depth of the footing 450mm.
- Depth of the footing at the edges 150mm.
- Reinforcement of the footing 12 ϕ HYSD@175 mm c/c both ways.

10. A doubly reinforced rectangular beam is provided over a door opening of size 4m × 2.5m clear. Draw the longitudinal section and a cross section of the beam for the following data. 15

- Clear span of the beam: 4.0m.
- Overall depth of the beam: 350mm.
- Width of the beam: 250mm.
- Tension reinforcement: 4 bars of 16 Φ HYSD.
- Compression reinforcement: 2 bars of 12 ϕ HYSD.
- Shear reinforcement: 6 ϕ 2 legged vertical stirrups @ 120 c/c in outer one third lengths @ 250mm c/c in the middle part.

11. Draw the elevation of a single leaf double panelled wooden door of size 1.0m × 2.1m with plywood panel inserts of 12mm thickness. 15