December 2017

316(S)

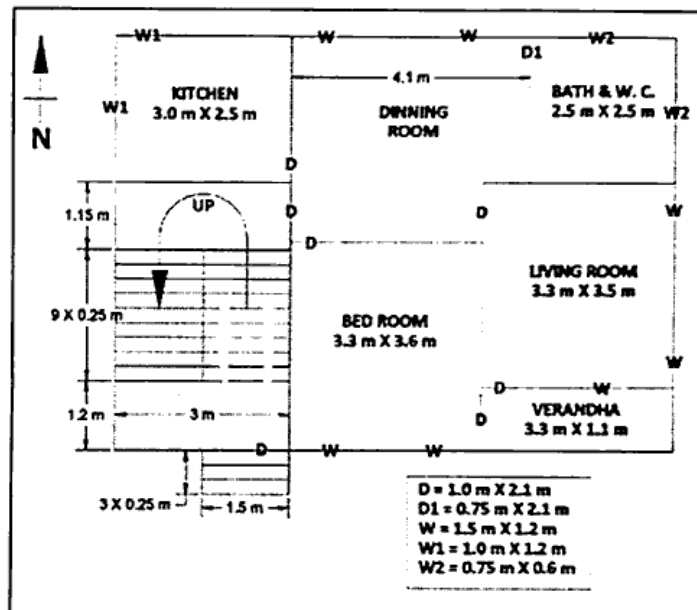## CIVIL ENGINEERING DRAWING

Time Allowed: 4 Hours

Full Marks: 70

**All drawings should be done in a suitable scale.
Assume suitable data as per convention, if not provided.**

Group-A
Answer <u>any two</u> questions.

1. Develop the GROUND FLOOR PLAN from the following line diagram assuming all wall thickness 250 mm.   18

2. Draw the FOUNDATION TRENCH PLAN of the line diagram given in Question No. 1, assuming thickness of foundation 1000 mm of all the walls.   18

3. Draw the FRONT ELEVATION & ROOF PLAN of the line diagram given in Question No. 1, assuming floor to floor height 3.0 m. Also assume any other suitable data as per convention.   18

4. Draw the SECTIONAL ELEVATION of the line diagram given in Question No. 1. The section is passing through Bath & W. C., Living Room & Veranda and the observer is facing towards west side of the building. Assume any other suitable data as per convention.   18

5. Draw HALF SECTIONAL PLAN, FRONT VIEW & SIDE VIEW of a single span simple slab type road culvert with the following dimensions:
   - Clear span = 1800 mm, Bed level = 1400 mm below G. L., Thickness of deck slab = 200 mm, Road width = 4000 mm, Height of Deck slab from G. L. = 2000 mm, Slope of embankment = 1 : 1, Road crust = 150 mm thick
   - Abutment slab bearing = 200 mm, Depth of foundation for abutment = 2500 below G.L., Thickness of abutment = 600 mm, Foundation width = 800 mm
   - Bed slab = 150 mm over a layer of B. F. S.
   - Parapet = 300 mm X 900 mm

Assume any other suitable data as per convention.   18

Group-B
Answer <u>any two</u> questions.

6. Draw the PLAN, FRONT ELEVATION & SIDE ELEVATION of a Gusseted base steel column from following data:
   - Steel Column = ISHB 250 @ 51.0 kg/m [b_f = 250 mm, t_f = 9.7 mm, t_w = 6.9 mm]
   - Flange cover plates = 2 nos. 300 mm × 8 mm
   - Gusset plate = 15 mm thick
   - Flange cleats = 2 nos. ISA 120 × 120 × 10
   - Web cleats = 2 nos. ISA 100 × 100 × 10
   - Rivets = 20 mm diameter @ 60 mm c/c
   - Base plate = 700 mm × 650 mm × 20 mm
   - Concrete base = 1000 mm × 950 mm × 450 mm   17

7. Draw the FRONT ELEVATION & SIDE ELEVATION of splicing arrangement for two I-sections of unequal sizes from the following data:
   - Lower column = ISHB 300 @ 58.8 kg/m [b_f = 250 mm, t_f = 10.6 mm, t_w = 7.6 mm]
   - Upper column = ISHB 250 @ 51.0 kg/m [b_f = 250 mm, t_f = 9.7 mm, t_w = 6.9 mm]
   - Packing plate = 25 mm thick
   - Cover plates = 200 mm X 600 mm X 20 mm
   - Distribution plate = 25 mm thick, 300 mm X 200 mm
   - Rivets = 20 mm diameter @ 60 mm c/c   17

8. Draw to a suitable scale, the FRONT VIEW (ELEVATION) of a wooden king post type roof truss of 8 m clear span & 2 m rise at the Centre. The following particulars are given:
   - Principal rafter = 150 mm × 180 mm
   - Tie beam = 150 mm × 200 mm
   - King post = 150 mm × 180 mm
   - Struts = 100 mm × 100 mm
   - Purlins = 100 mm × 180 mm
   - Roofing = C. G. I. sheeting
   - The truss is supported on cement brickwork (1:4) 400 mm wide.   17