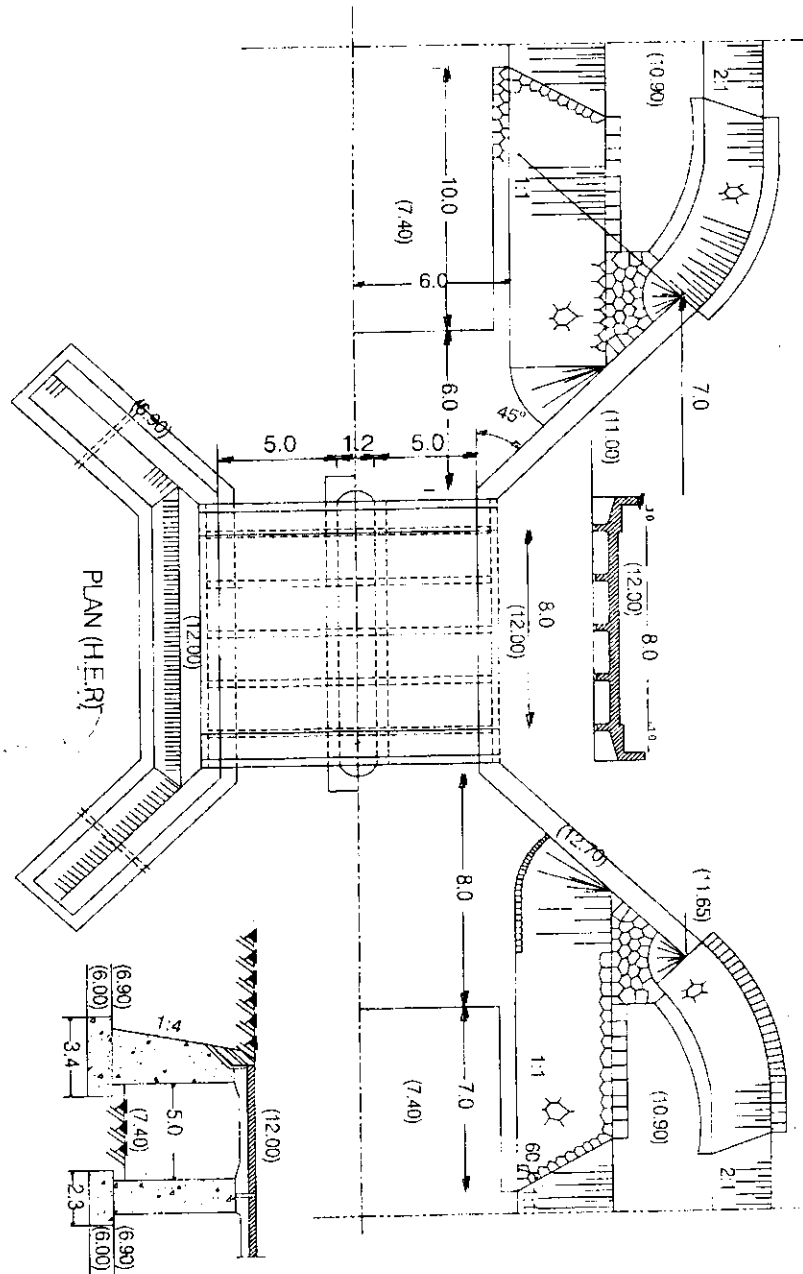




Remarks: No. of pages: 2 No. of questions: 3
 Allowed Tables and Charts: (--) Answer all the following Questions [120 Marks]
 Any missing data can be reasonably assumed

Question (1) [60 Marks]

1. Give clear description of the following structure. (5 Marks)
2. It is required to draw to scale of 1 :100 the following:
 - a) Plan H.E.R. (10 Marks)
 - b) SEC Elevation at the centerline of the vent. (25 Marks)
 - c) Side View. (20 Marks)



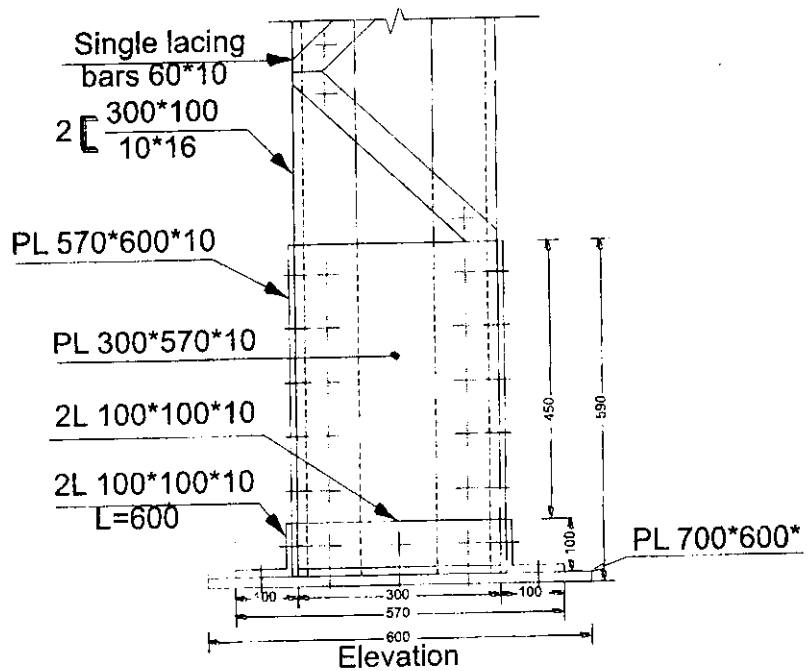
Question (2) [30 Marks]

1. It is required to draw a **longitudinal section and a cross section** of rectangular column, which has dimensions of 30 * 90 cm with reinforcement 16 bars with 18 mm diameter with 7 stirrups with diameter 8 mm/m. **(5 Marks)**
2. It is required to draw a **longitudinal and cross sections** of unequal spans continuous beam with three spans equal 4, 6, and 5 m. the cross sections are 30*70 with reinforcement 6 straight bars with 16 mm diameter and 4 bottom additional bars with 18 mm diameter in the middle of the spans and 4 upper bars (stirrup hunger) with 12 mm diameter and 6 upper additional bars with 16mm diameter on the supports and the slab thickness 15cm with 6 stirrups with diameter 8 mm/m.**(15 Marks)**
3. It is required to draw a plan and a cross section of a footing which has section 2.2*2.50*0.70 with reinforcement 8 bars with 18 mm diameter in one meter at the main direction and 6 bars with 16 mm diameter in one meter in the other direction. **(10 Marks)**

Question (3) [30 Marks]

For the following figure it is required to draw:-

1. Plan **(10 Marks)**
2. ELE **(10 Marks)**
3. S.V **(10 Marks)**



Question no.	1.1	1.2.a,b,c	2.1,2,3	3.1,2,3
ILO's	a.11.12	b.4.1, b.14.1 and c.15.1	b.4.2	b.4.2

Dr .Eng. \ Esam Helal