KATHMANDU UNIVERSITY
End Semester Examination
June/July, 2023

29 JUN 2023

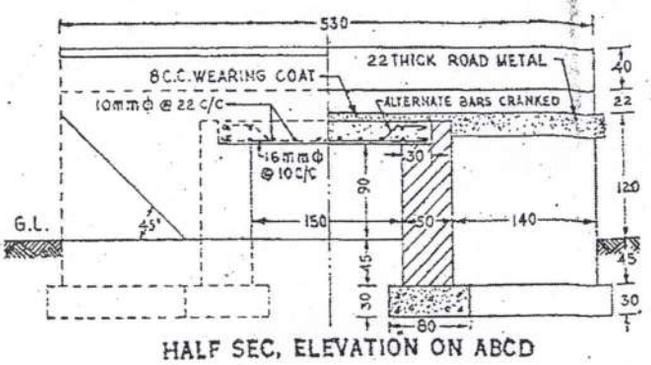
Level : B.Tech.
Year : III
Time : 2 hrs. 30 mins.

Course : ENVE 311
Semester : II
F. M. : 55

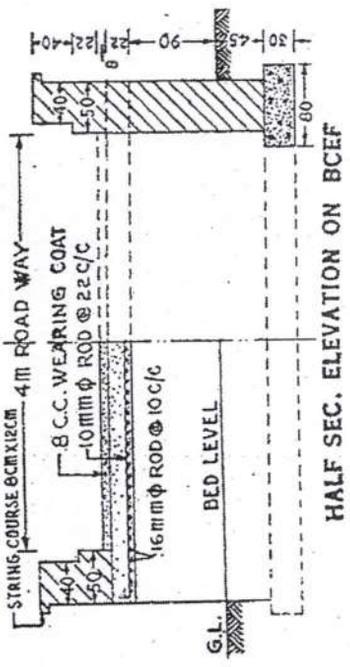
SECTION "B"
[2Q × 10 = 20 marks]

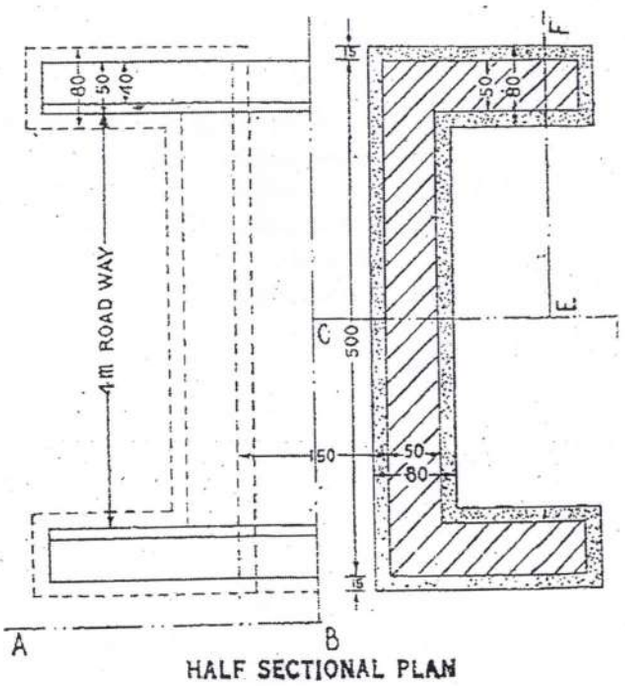
Attempt *ANY TWO* questions.

1. From the provided drawing of culvert, calculate the following quantities:
   a. Earth work in excavation [2]
   b. PCC work in foundation [2]
   c. .Steel bars including bending in RCC work [6]



HALF SEC. ELEVATION ON ABCD



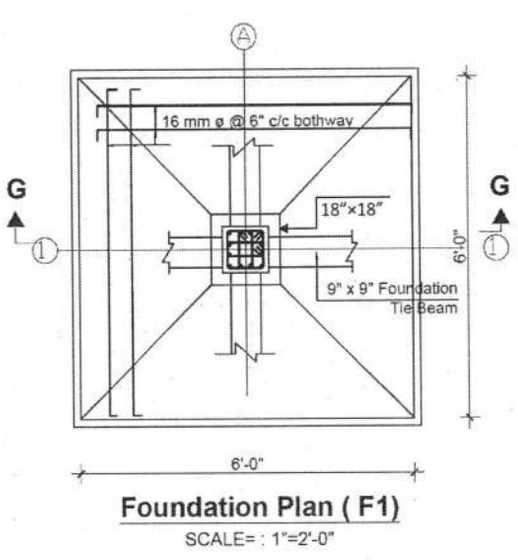


HALF SECTIONAL PLAN

All dimensions in centimetre

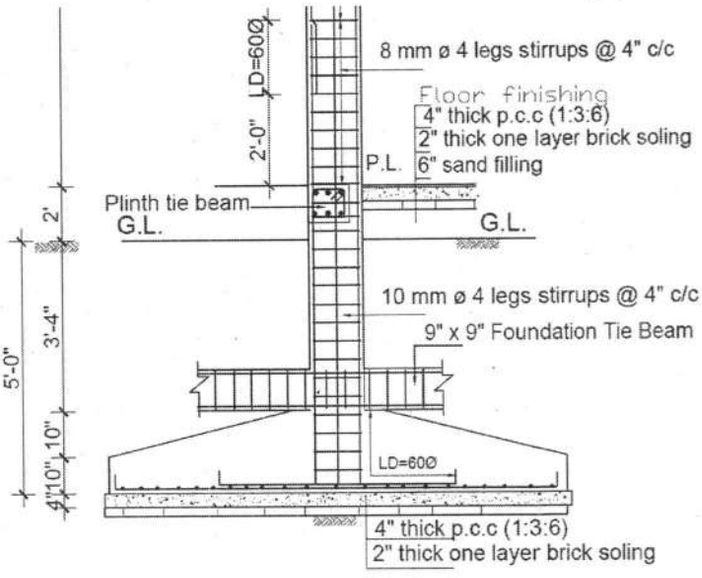
2. There are total twelve isolated foundations (F1) in a residential building. The plan and cross section of the foundation and column section is provided below. The cross sectional area of column is 14"×14". Calculate the following quantities required for the completion of the R.C.C work (1:1.5:3) in column and foundation below the ground level.

a. Quantity of R.C.C work [3]
b. Cement (in bags) [3]
c. Sand (in m^3) [2]
d. Water (in L) [2]



Foundation Plan (F1)

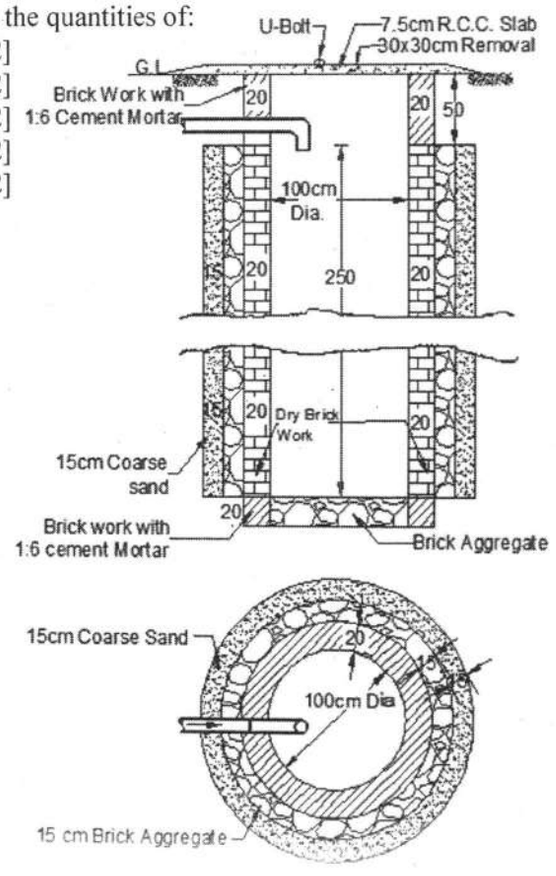
SCALE= : 1"=2'-0"



Foundation & Column Section

3. From the given drawings of Soak pit, Estimate the quantities of:

a. Earthwork in excavation [2]
b. Brickwork with 1:6 cement mortar [2]
c. Second class dry brick work [2]
d. Coarse sand [2]
e. R.C.C roof cover slab [2]



SECTION "C"

[7Q × 5 = 35 marks]

Attempt *ANY SEVEN* questions.

4. A three storey residential building having built up portion 20 m×15 m is situated by the side of main road of a city on a land of 500 m^2. The building is first class type and provided with water supply, sanitary and electric fittings and the age of the building is 30 years. Assuming the life of building to be 65 years (rate of depreciation =1.30), workout on the valuation of the property. The cubical rate for construction of similar type of building is Rs.12,000 per m^3 including all other facilities. Assume height of a storey to be 3m and cost of land to be Rs.60,00,000 per aana. (1aana = 31.8 m^2).

5. Prepare a preliminary estimate of a residential building having carpet area 1350m^2. Take circulation area 18% of the built up area and area covered by stone walls is 15% of the built up area. Assume the plinth area rate of civil works is Rs. 25,000.00/m^2 excluding all other facilities. Take cost of water supply and sanitary as 6% of building cost and electrical works as 8% of building cost. Cost of contingencies and supervision charges is 5.5% of total cost.

6. Calculate the quantities of materials required for plastering (1:4) room having internal area of 5m × 4m. The thickness of plaster is 20mm. The height of the building is 3.2m. There are 2 windows and a door having dimension 1.2m × 1.9m and 0.9m × 2.7m respectively.

7. Calculate the quantity of earthwork for 200 meter length for a portion of road in a uniform ground the height of banks at the two ends being 1.00 m and 1.60 m. The formation width is 10 meter and the side slopes 2:1. Assume that there is no transverse slope. Use mean sectional area for the calculation.

8. Define rate analysis and state its purpose.

9. Explain the rental method of valuation of a property with a suitable example.

10. Explain on system of unit and degree of accuracy in estimating.

11. Write a brief note on contingencies and overhead cost.

12. Differentiate between depreciation and obsolescence with appropriate examples.

13. Explain the factors to be considered while preparing detailed estimate.