

6TH SEM ./ CIVIL ./ 2023(S)

CET 604 Estimation & Cost Evaluation-II

Full Marks: 80

Time- 3 Hrs

Answer any five Questions including Q No.1& 2
Figures in the right hand margin indicates marks

- 1 Answer **All** questions 2 x 10
- a. What is Muster Roll?
 - b. What is Tender?
 - c. Calculate the additional length of bent up bar for 45° cranked bar.
 - d. What is earnest money?
 - e. What is an aqueduct?
 - f. Find out weight of a 20 mm dia bar of 1m length.
 - g. Classify different types of work.
 - h. What is the weight and volume of one bag of cement.
 - i. Define lead and lift.
 - j. Write down the use of a measurement book.
- 2 Answer **Any Six** Questions 6 x 5
- a. Calculate the quantity of earthwork for 250 meter length for a portion of a road in an 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 side slopes 2:1 (horizontal:vertical). Assume that there is no transverse slope. Use
 - (i) Mid Sectional Area method
 - (ii) Mean Sectional Area method
 - b. Briefly explain different types of contract.
 - c. Estimate the quantity of following item for a hume pipe culvert from figure 1
 - (i) Earthwork in excavation
 - d. Estimate the quantity of earthwork in excavation for a fall from figure 2.
 - e. Estimate the quantity of 1st class brickwork in 1:4 cement mortar for a hume pipe culvert from figure 1.
 - f. Write short notes on
 - (i) Regular establishment
 - (ii) Workcharged establishment
 - g. Find out the quantity of cement concrete in 1:4:8 with brick ballast for a drainage syphon from figure 3.
- 3 Estimate the quantity and cost of earthwork for a road between two stations A to B with 10
following datas:
Width of road is 10 m at formation surface and side slope 2:1. Rate for earthwork in banking and cutting may be taken as Rs. 2 per cum including a lead up to 150 m with a condition that portion of earthwork available from cutting is to be utilized for banking within the same lead of 150 m. The datas of field book for the portion of road are as below

chainage	0	1	2	3	4	5	6
Reduced level	123.90	125.00	124.60	122.90	121.60	121.00	120.40
Formation level	123.20	123.60	124.00	123.60	123.20	122.80	122.40

One chain = 30 m

- 4 Write short notes on 10
- (a) Special Repair and Annual Repair
 - (b) Piece Work Agreement
 - (c) Temporary advance
 - (d) Bill and voucher
- 5 Prepare a detailed estimate of a RCC roof slab of 3.5 m clear span and 5 m long with the following data 10
- Slab thickness = 15 cm
Main bar = 10 mm dia 15 cm c/c with alternative bent up
Distribution bar = 6 mm dia 20 cm c/c
Assume any other data.
- 6 Estimate required quantity for the construction of a road having metal width 5.5 m, length of 1 Km. Thickness of metal soiling is 8 cm, wearing coat of stone is 12 cm loose consolidated to 8 cm thick. Surface to be finished with two coat of bitumen. First coat is provided with 12 mm size [chips @ 0.018](#) m³/sqm and bitumen used @ 1.2 kg/sqm. Second coat provided with 6 mm size chips @ 0.01 m³/sqm and bitumen used @ 1.2 kg/sqm of the road surface. Consumption of fuel @ 0.4 kg per kg of bitumen. 10
- 7
 - (a) Estimate the quantity of 1st class brickwork in 1:4 cement mortar for drainage siphon from figure 3.
 - (b) Estimate the quantity of cement pointing for a fall from figure 2.5+5

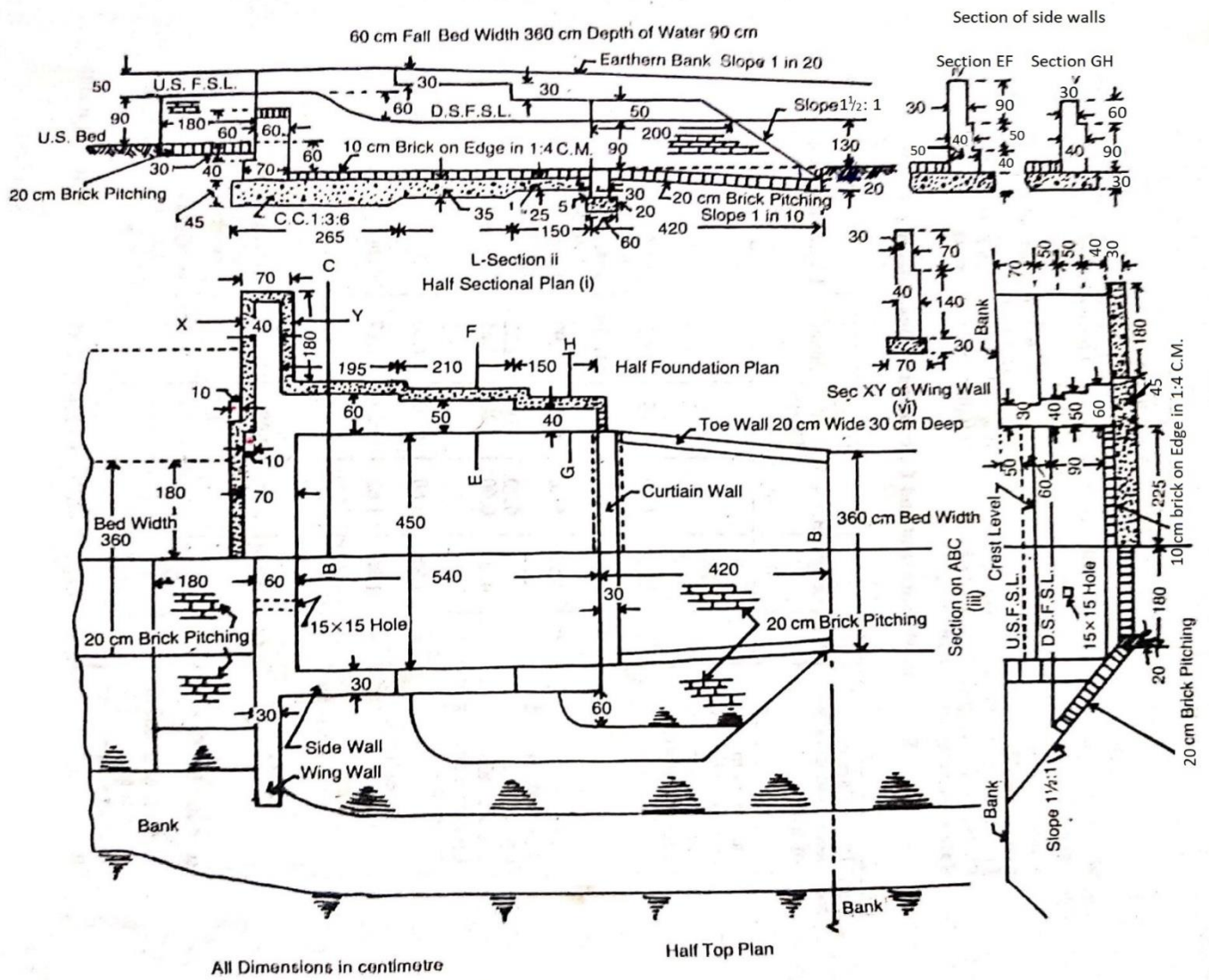
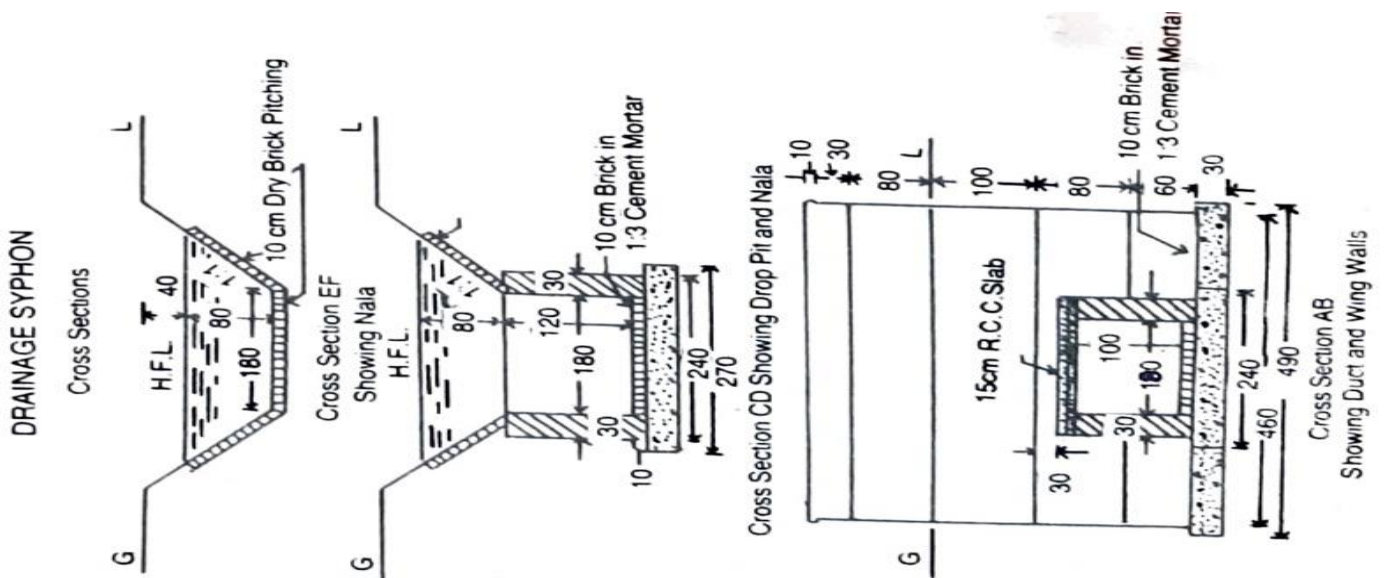


FIGURE 2



DRAINAGE SYPHON ACROSS A MINOR

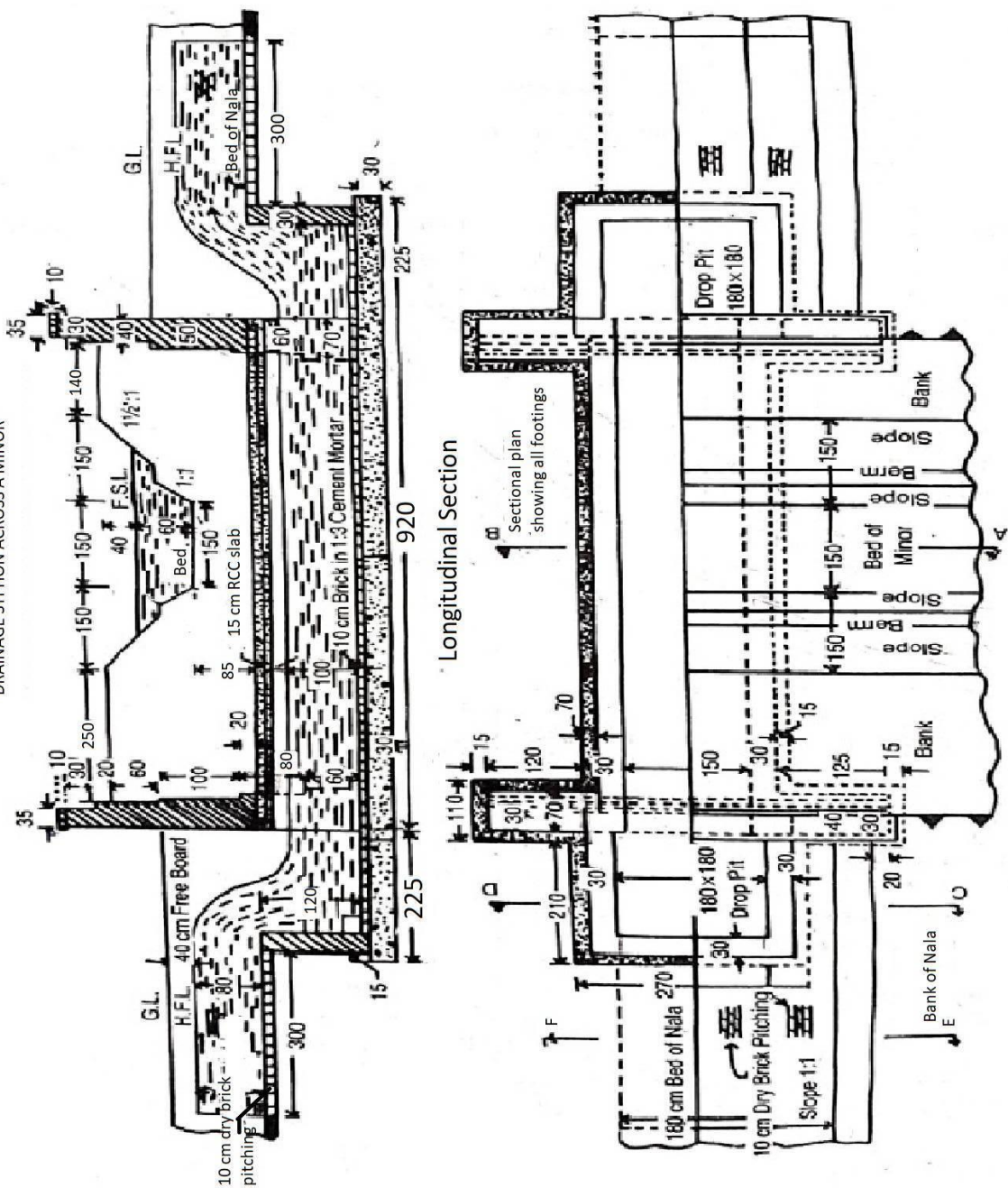


FIGURE 3

All Dimensions in Centimeter