

## TH 5 Estimation &amp; 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 a Culvert and when Hume pipe Culvert is preferred?
- b. What is the total length of straight bar hooked at both ends having straight length L and dia D?
- c. What indent and stock?
- d. Classify different types of work?
- e. Define tender and contract.
- f. Define Lead and Lift.
- g. Calculate the additional length of bent up bar for 45° cranked bar?
- h. Calculate the number of main bars required for a slab of 2.1m X 4.8m provided with 16 mm dia bars @ 30cm C/C ?
- i. Enlist different components of hume pipe culvert.
- j. What is final bill and running bill ?

2 Answer **Any Six** Questions 6 x 5

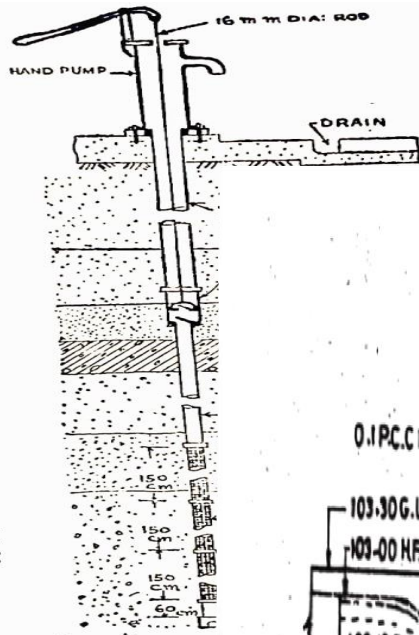
- a. Calculate the quantity of earthwork by prismoidal method for 200 mtr length for a portion of a road in an uniform ground, the heights of banks at the two ends being 1.00m and 1.60m. The formation width is 10 mtr and side slopes 2:1 (Horizontal : Vertical). Assume that there is no transverse slope.
- b. Estimate the following item involved for the fall from fig 2.  
i. Earth work in excavation
- c. Estimate the volume of concrete for the footing given in the fig 5 ?
- d. Explain muster roll and measurement book.
- e. Estimate the cost of earthwork for a portion of a road from the following data.  
Road width at the formation surface is 8 metre. Side slope 2:1 in banking and 1½:1 in cutting.  
Length of the chain is 30 metre.

chainage	20	21	22	23	24	25	26	27	28	29
Ground level	71.20	71.25	70.90	71.25	70.80	70.45	70.20	70.35	69.10	69.45
Formation level	70.00	Upward gradient 1 in 200								

Take the rate of earthwork as Rs. 275.00 per cum in banking and Rs. 350.00 per cum in cutting.

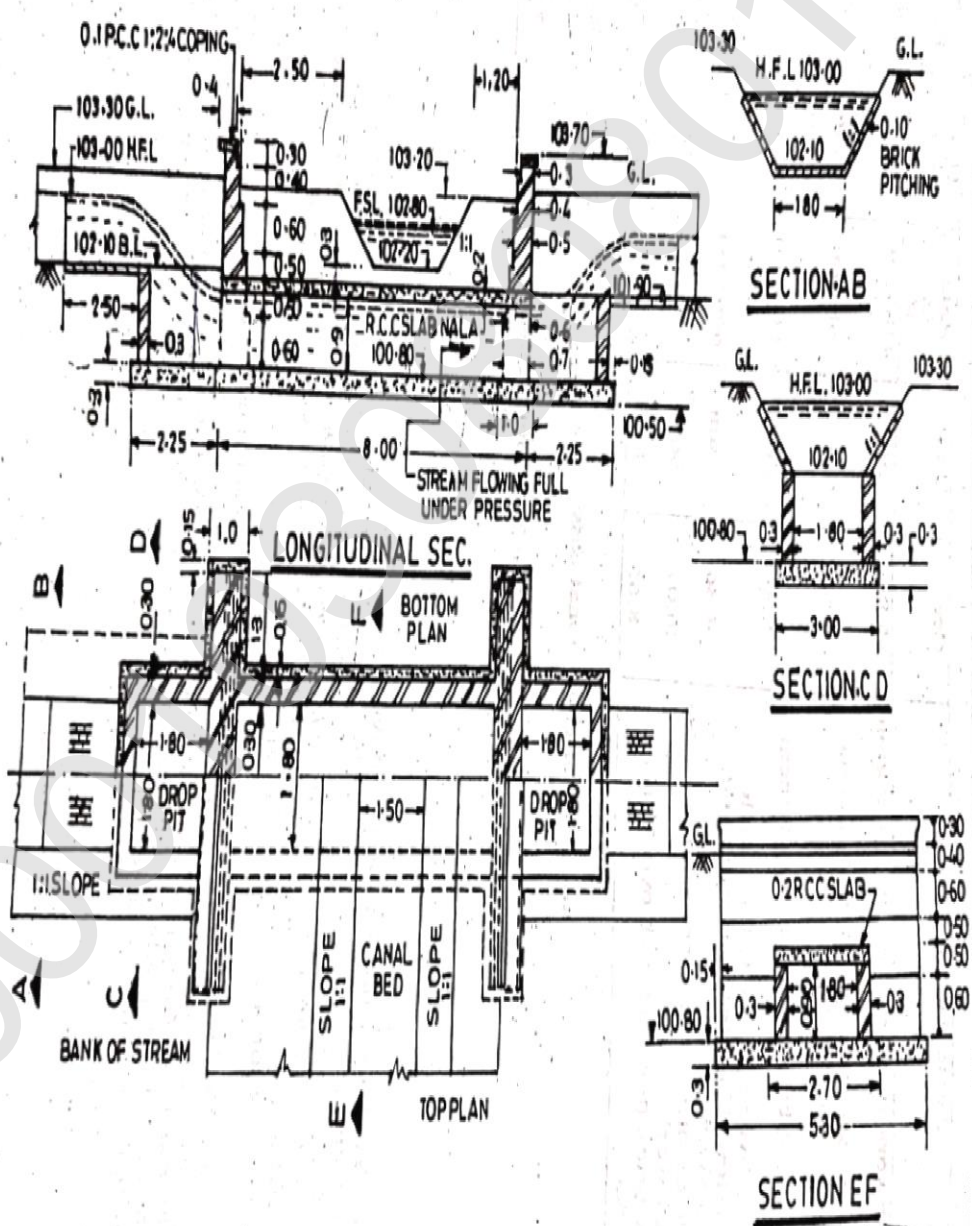
- f. Estimate the quantities of items of a tube well from fig No 4 . 5
- g Estimate the following items of a fall from fig 2  
 i.Cement Pointing in 1:3 cement mortar.  
 ii.Brick pitching.
- 3 Estimate the following items of work of a slab culvert from Fig No 1. 5+5  
 i. I class brickwork in 1:4 cement mortar.  
 ii. R.C.C Work.
- 4 Prepare a detailed estimate of the following items of a siphon aqueduct from the given figure 6.  
 The general specifications :  
 cement concrete in foundation shall be 1:3:6 with brick ballast.  
 Brickwork shall be of cement mortar 1:4.  
 i. Earthwork in excavation in foundation.  
 ii. First class brickwork in cement mortar (1:4).
- 5 Estimate the following items involved for septic tank shown in Fig No 3. 3+3+2+2  
 i. Earth work in excavation  
 ii. I class brick work in 1:4 cement mortar  
 iii. 12 mm thick inside plastering.  
 iv. R.B work in partition wall.
- 6 Estimate the items involved for construction of a WBM road from the following data: 10  
 Length of road =150 m.  
 Formation width =10m.  
 Metalled width = 8 m.  
 Thickness of grade-I metal solving = 90mm.  
 Wearing coat of grade-II metal =12 cm thick loose and 8cm thick compacted  
 surface to be finished with 2 coats of bitumen as given below:  
 First finishing coat = 12 mm chips @ 0.020 m<sup>3</sup> and bitumen @ 1.24 kg per m<sup>2</sup> of road surface.  
 Second finishing coat = 6 mm chips @ 0.02m<sup>3</sup> and bitumen @ 1.24 kg per m<sup>2</sup> of road surface.  
 Consumption of fuel @ 0.45 kg per kg of bitumen.
- 7 Write short notes on : 2 ½ x 4  
 (a) Regular Establishment  
 (b) Aquittance role  
 (c) Administrative Approval.  
 (d) Tender and contract





Trapezoidal column footing

(Fig 4)  
(Fig 5)



(Fig 6)