VST/ 5th sem/CIVIL Engg./ UGMIT, RAYAGADA

Th-5: Estimating and cost evaluation-2

FM- 80 Time- 3hrs

Answer all questions

1. The dimensions of a RCC slab is 4.00mx5.00mx12cm deep.Reinforcement of 12mm dia rods are placed in short span@15cm c/c of the total no. of rods, 16 no.s have been cranked and hooked at the ends. Other rods are straight and hooked at the ends.To hold the cranked portion 4 no.s 10mm dia straight and hooked rods have been used. The 10mm dia rods are placed in a direction of long span @ 20cm c/c and all are straight and hooked at the ends. The covers are 1.8cm at the bottom and 2.5cm on all sides. Assume any other dimensions not given. Estimate the total weight of steel required for reinforcement of the slab. [15
2. Work out the earth work for road from the following data: [10
   Formation width- 10m, Slopes in cutting- 1:1, slopes in filling- 2:1, Formation level at chainage 0= 105.00, Down ward gradient : 1 in 100

Chainage	0	100	200	300	400	500	600	700
NSLs	100.30	102.50	99.00	103.50	104.40	106.40	105.30	105.00

3. Write short notes on any four: [16
   i. Administrative approval, Technical sanction
   ii. MB, Standard MB
   iii. NIT
   iv. Muster roll
   v. Item rate and Lumpsum contract
   vi. Bill and Voucher
4. Estimate the items involved in construction of WBM road from following data: [8
   Length of road=150m
   Formation width= 10m
   Metaled width= 8m
   Thickness of grade-1 metal soling= 90mm
   Wearing coat of grade-2 metal= 12cm thick loose and 8cm thick compacted surface to be finished with 2 coats of bitumen as given below:
   First finishing coat= 12mm chips @0.020m^3 and bitumen @1.24kg per m^2 of road surface
   Second finishing coat= 6mm chips @0.020m^3 and bitumen @1.24kg per m^2 of road surface
   Consumption of fuel@ 0.45 kg per kg of bitumen
5. Prepare a quantity estimate for the following items of work of a slab culvert (Fig-1) [16
   a) Earth work in excavation
   b) Cement concrete in foundation
   c) 1st class brick work in cement mortar (1:4)
   d) Cement plaster over brick work in cement mortar (1:3)
6. Prepare a detailed estimate of syphon aqueduct as given in Fig-2. [15

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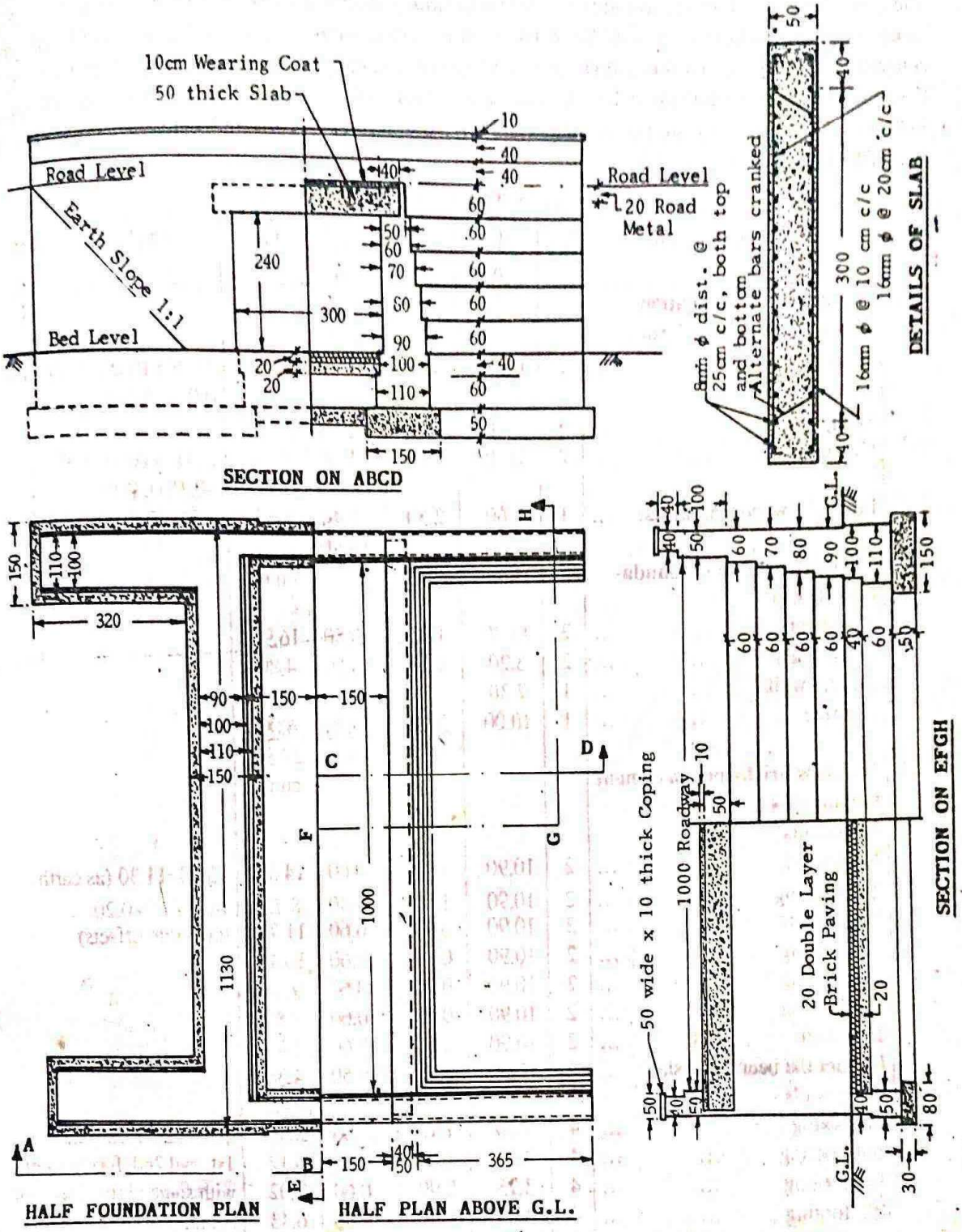

ALL DIMENSIONS IN CENTIMETRE

FIG. 1

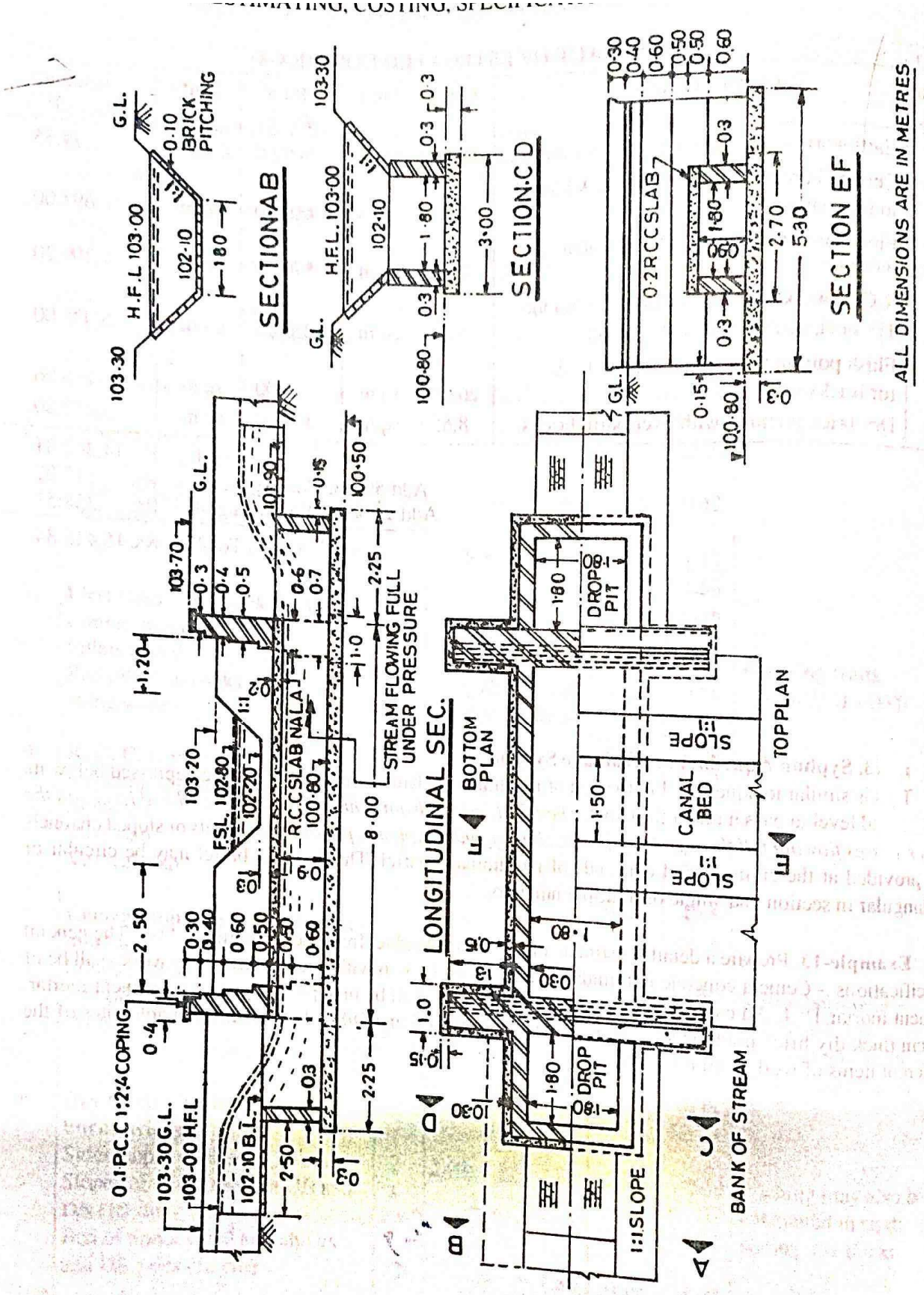
SECTION AB
SECTION C D
SECTION E F
LONGITUDINAL SEC.
BOTTOM PLAN
TOP PLAN
ALL DIMENSIONS ARE IN METRES
R.C.C SLAB NALA
STREAM FLOWING FULL UNDER PRESSURE
0·2 R.C.C SLAB
DROP PIT
CANAL BED
SLOPE
BANK OF STREAM
1:1 SLOPE
0·1 P.C.C 1:2:4 COPING
H.F.L 103·00
G.L.
F.S.L. 102·80
B.L.

Fig-2