ESTIMATION AND COSTING

Full Marks – 70

Pass Marks – 28

Time – Three hours

The figures in the margin indicate full marks for the questions.

1. Figure-1 shows plan and cross-section of an underground water tank with pump house. Estimate the quantities of the following items of work.

    20

    (a) Excavation in earthwork for the tank and well foundation.

    (b) Brick masonry in 1:6 cement mortar up to plinth level.

    (c) Brick masonry in 1:6 cement mortar in super structure.

    (d) Woodwork for doors, windows and ventilators.

    (e) Flooring for tank and pump house.
    (Assume missing data if any suitably)
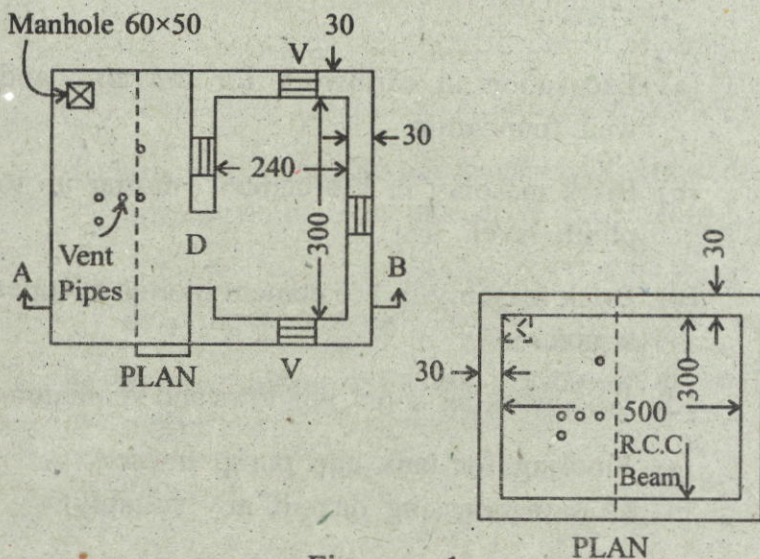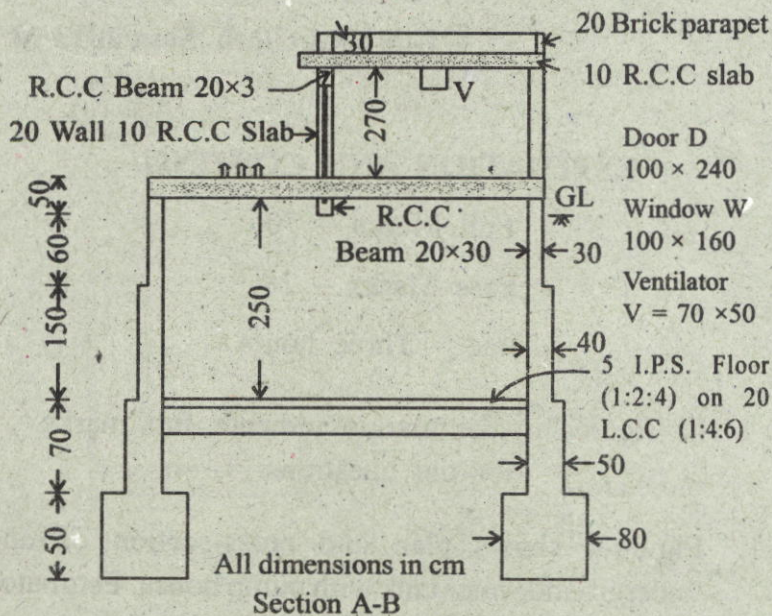
[Turn over

R.C.C Beam 20×3

20 Wall 10 R.C.C Slab→

50
60
150
70
50

250

30

270

V

R.C.C
Beam 20×30 →

GL

←30

←40

←50

80

All dimensions in cm

Section A-B

20 Brick parapet

10 R.C.C slab

Door D
100 × 240

Window W
100 × 160

Ventilator
V = 70 ×50

5 I.P.S. Floor
(1:2:4) on 20
L.C.C (1:4:6)

Manhole 60×50

30

V

←30

240

300

D

Vent
Pipes

A

B

PLAN

V

30 →

←

300

500

R.C.C
Beam

30

PLAN

Figure - 1

57/CT-601/E&C   (2)

2. A canal with side slopes 1½ : 1 and bed width 3·5m with water depth of 0·60m is carried in full embankment. The side slopes of the embank-bank are 1½ : 1 on both sides and the bank widths are 3·3m and 1·8m on the left and right bank sides respectively. The G.L for a length of 600m are as tabulated below. The canal bed level at chainage 1000 is R.L 208·900 and the bed slope of the canal is 1 in 5000. Estimate the quantity of earthwork in embankment take free board for the canal as 0·45m.

Chainage (n): 1000   1100   1200   1300

G.L R.L(m) : 208.90 208.75 208.60 208.50

Chainage (n): 1400   1500   1600

G.L R.L(m) : 208.50 208.40 208.35   20

3. Give the detailed specification of the following items of wook (any *two*) :   20

   (i) Coursed rubble stone masonry

   (ii) First class building brickwork

   (iii) Earthwork in excavation in foundation.

4. Calculate the quantities of the following item of work from the L-shaped wall of a building from the given plan and section and general specification. **10**

Plan
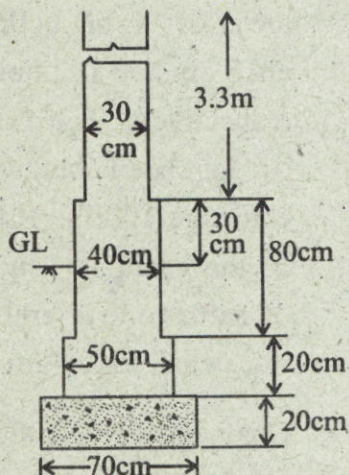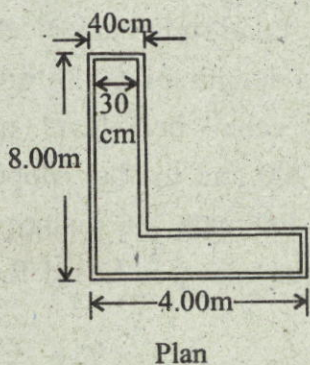
Section of wall

(i) Foundation concrete shall be of lime concrete

(ii) Foundation and plinth shall be of 1st class brickwork in lime mortar

(iii) DPC 2.5 mm C.C and 1:1½ :3 with water-proofing compound.

(iv) Superstructure 1st class brickwork in lime mortar.