22503

23124

3 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Illustrate your answers with neat sketches wherever necessary.

(3) Figures to the right indicate full marks.

(4) Assume suitable data, if necessary.

(5) Use of Non-programmable Electronic Pocket Calculator is permissible.

(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following : **10**

a) State the purpose of estimating.

b) Define approximate estimate.

c) Define centage charges.

d) State the purpose of approximate estimate.

e) State the term "Work charged establishment"

f) Define rate analysis.

g) State the different methods of calculating earth work.

Marks

2. Attempt any THREE of the following : **12**

a) State the rules of deduction for plastering as per IS : 1200.

b) State the roles and responsibilities of estimator.

c) Prepare approximate estimate of a factory building from following data.

i) Office premises – R.C.C. framed type. Total area 150 sq.m. built up.

ii) Workshop – 4 bays of size 4 m × 8 m with load bearing walls and A.C. sheet roof.

iii) Plinth area rates.

(1) RCC building - Rs. 18,500/- sq. meter

(2) Load bearing building - Rs. 6,500/- sq. meter

d) Explain Long wall short wall method for calculating items of work.

3. Attempt any THREE of the following : **12**

a) Describe in brief DSR and state its uses.

b) Prepare approximate estimate for public building from given data :

i) Plinth area = 2200 sq.m.

ii) Plinth area rate = 3500 sq.m.

iii) Electric Installation charges = 8% of cost of building.

iv) Water supply charges = 3% of cost of building.

v) Contingencies = 2% of overall cost of building.

vi) Engineer supervision charges = 4% of overall cost of building.

c) Differentiate between unit quantity method and total quantity method.

d) Work out external plastering for a room size 5.5 m × 3.2 m inside dimensions with wall thickness 230 mm. The plinth height is 400 mm, height of ceiling from plinth is 3 m. The schedule of openings is below :-

Door (D) : 1.0 m × 2.1 m – 2 No.

Window (W) : 1.5 m × 1.2 m – 1 No.

V_1 : 0.45 m × 0.6 m – 2 No.

Marks

4. Attempt any THREE of the following : **12**

a) Differentiate between revised estimate & supplementary estimate.

b) Figure No. 1 shows a plan of building and section of a wall. Calculate following quantities by any method.

i) Excavation for foundation.

ii) U.C.R. masonary in C.M. (1:6) in foundation and plinth.

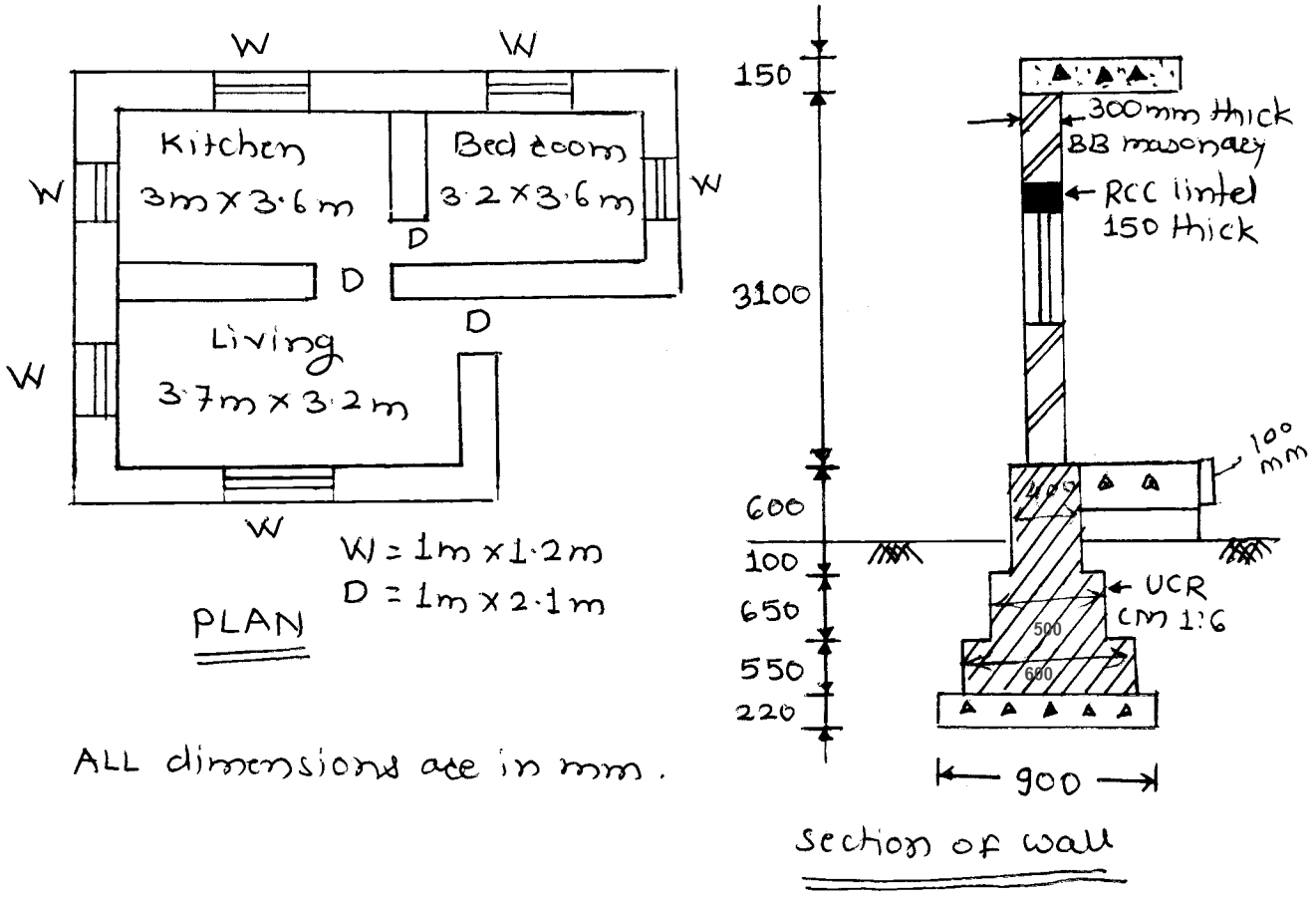

Fig. No. 1

c) Calculate the following quantities from Fig. No. 1)

i) B.B. Masonary in super structure in c.m. (1:5)

ii) Mosaic tiled flooring in all rooms.

Marks

d) Work out the quantity of materials required for following items.

i) 40 m^3 brick masonary in c.m. 1:6

ii) 50 m^3 12 mm thick cement plaster in cm 1:4.

e) Calculate the quantity of earthwork for construction of percolation tank having the following data :

i) Top width 3 m.

ii) R.L. of top of embankment 102.00 m.

iii) Side slopes - upstream and downstream

Side 1:2 (V:H) = d) Refer table.

Chainage in m	0	30	60	90	120	150
Rl of G.L. in m	100.50	98.00	95.50	96.00	97.00	99.75

5. Attempt any TWO of the following : **12**

a) A R.C.C. Lintel size 250 × 150 mm and clear span of 1.5 m is reinforced with 4 bars of 10 mm ϕ @ bottom and 3 bars of 8 mm ϕ @ top. The stirrups of 6 mm ϕ are provided 150 mm c/c. Bearing of lintel is 150 mm. Calculate total quantity of steel reinforcement.

b) Prepare rate analysis for P.C.C. of grade M15.

c) The formation level of a road at starting point is 470.00 m. The road surface shall be falling gradient line of 1:60. Formation width of the road is 12 m, side slop 1:2 in embankment and 1:1.5 in cutting. Assume there is no cross slope to the ground.

Chainage in m	0	30	60	90	120	150
Rl of GL in m	466.50	467.20	468.10	468.20	469.70	469.00

Calculate the quantity of earth work for road using mean-sectional area method.

Marks

6. Attempt any TWO of the following : **12**

a) Refer Fig. No. 2 and calculate the quantities of the following in respect of underground water tank.

i) Excavation for foundation.

ii) P.C.C. 1:4:8

iii) B.B. masonary in cm 1:6.

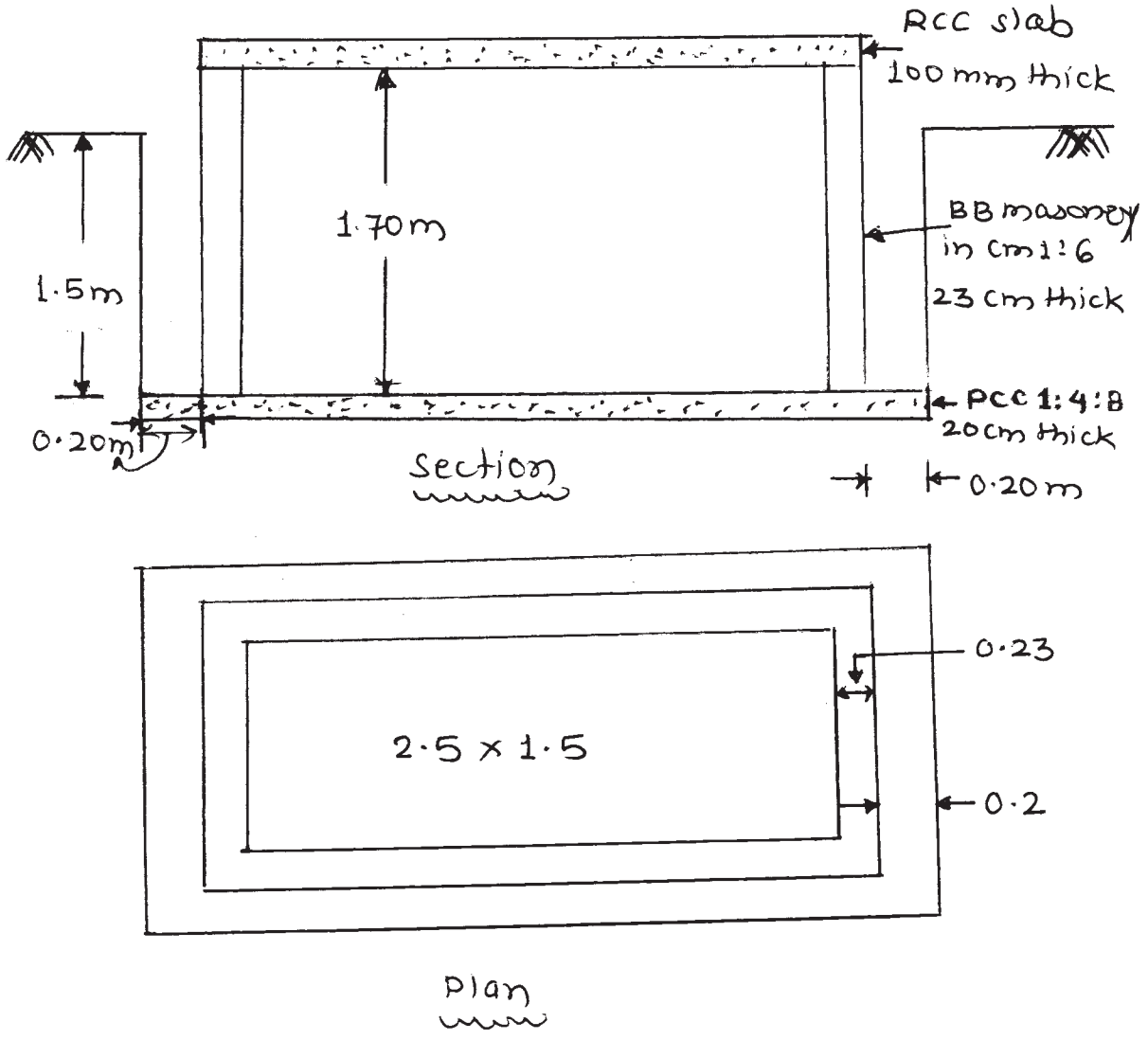

Fig. No. 2

Marks

b) Explain how to design a house-hold septic tank.

c) Calculate the material required for

i) Brick masonary for wall having length 10 m height 3 m and thickness 20 cm.

ii) Plastering for wall 10 m × 3 m with CM 1:4 and thickness 15 mm

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