

22503

23124

3 Hours / 70 Marks

Seat No.

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- 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.

P.T.O.

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.
V₁ : 0.45 m × 0.6 m – 2 No.

4. Attempt any THREE of the following :

12

- Differentiate between revised estimate & supplementary estimate.
- Figure No. 1 shows a plan of building and section of a wall. Calculate following quantities by any method.
 - Excavation for foundation.
 - U.C.R. masonry in C.M. (1:6) in foundation and plinth.

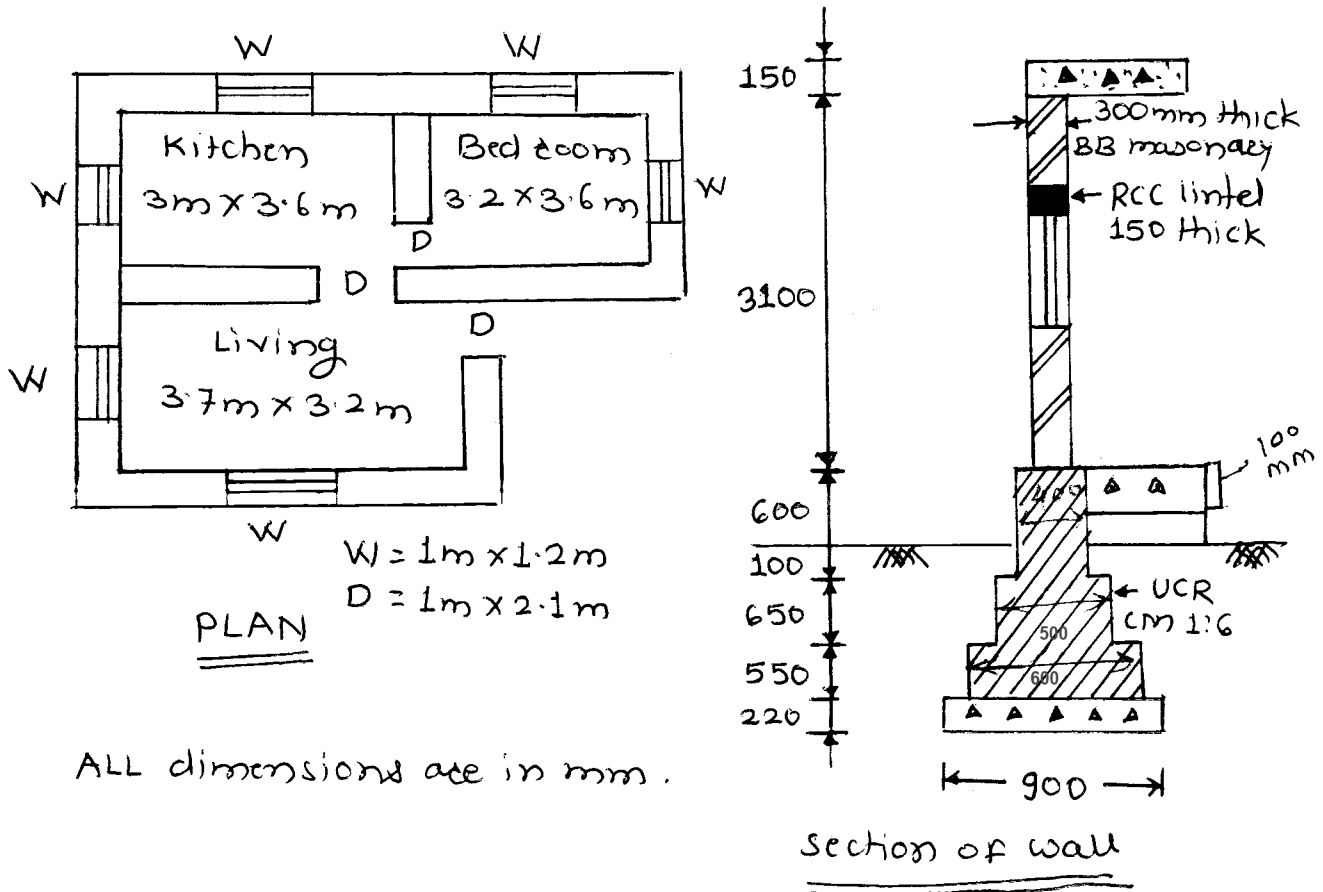


Fig. No. 1

- Calculate the following quantities from Fig. No. 1)
 - B.B. Masonry in super structure in c.m. (1:5)
 - Mosaic tiled flooring in all rooms.

- d) Work out the quantity of materials required for following items.
- 40 m³ brick masonry in c.m. 1:6
 - 50 m³ 12 mm thick cement plaster in cm 1:4.
- e) Calculate the quantity of earthwork for construction of percolation tank having the following data :
- Top width 3 m.
 - R.L. of top of embankment 102.00 m.
 - 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 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.
- Prepare rate analysis for P.C.C. of grade M15.
- 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.

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. masonry in cm 1:6.

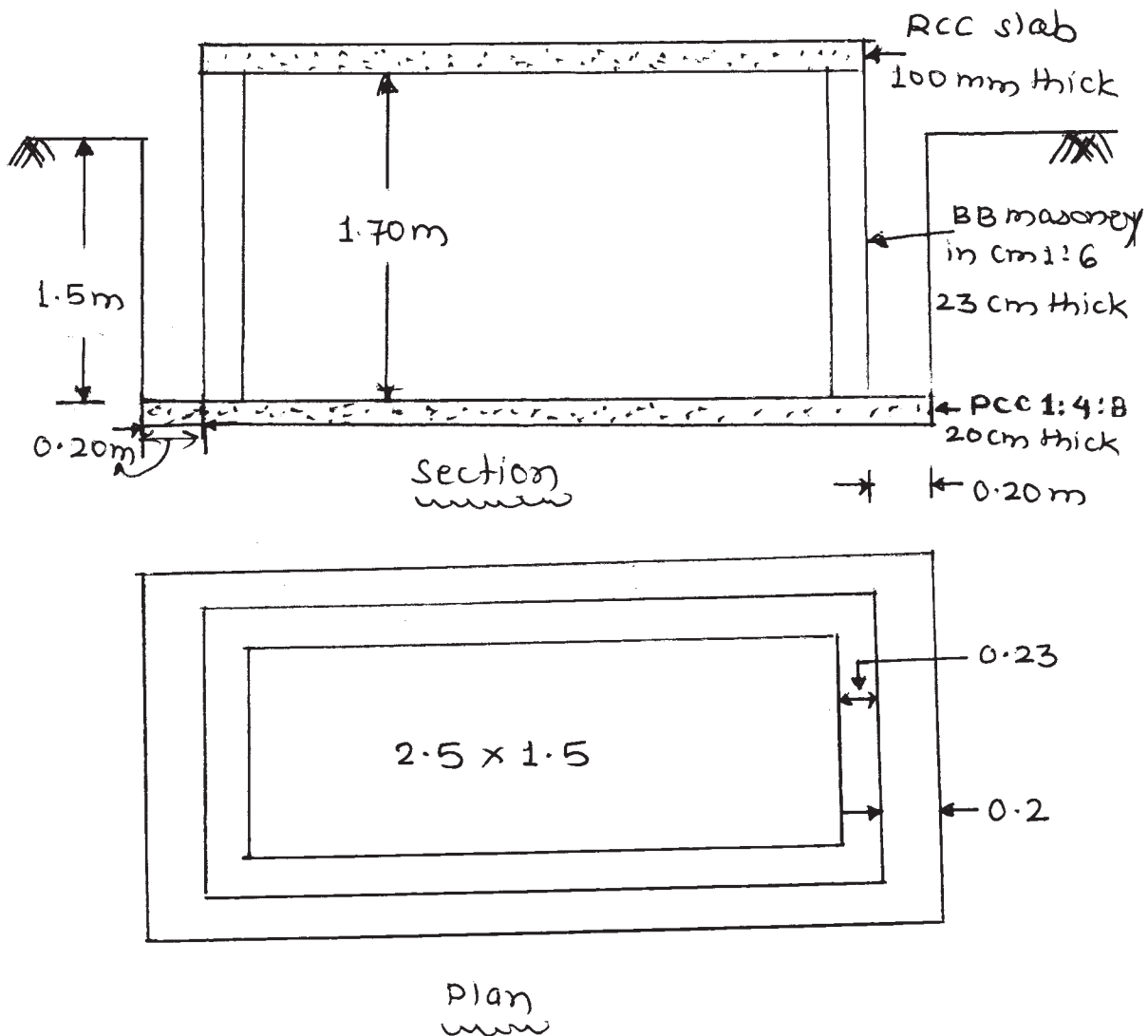


Fig. No. 2

22503

[6]

Marks

- b) Explain how to design a house-hold septic tank.
 - c) Calculate the material required for
 - i) Brick masonry for wall having length 10 m height 3 m and thickness 20 cm.
 - ii) Plastering for wall $10\text{ m} \times 3\text{ m}$ with CM 1:4 and thickness 15 mm
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