22503

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

(2) Answer each next main Question on a new page.

(3) Illustrate your answer with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

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

(7) 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 meaning of estimating and costing.

b) State different types of approximate estimates.

c) Give unit of measurement for –

i) Excavation

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

iii) Partition wall 100 mm thick

iv) Wood work for door frame.

d) State the data required for detailed estimate.

e) State four factors which affect the rate analysis.

f) Define the term lead and lift.

g) List the four relevant software for preparing estimate.

P.T.O.

2. **Attempt any <u>THREE</u> of the following:** **12**

a) Enlist types of detailed estimate and purpose of detailed estimate.

b) Explain the multiplying factors for taking measurements of painting works for the following:

i) A.C. sheet corrugate

ii) Fully glazed door.

c) Explain the rules of deduction of opening in plastering work as per I.S. 1200.

d) Prepare a approximate estimate of a residential building having following data:

i) Plinth area – 70 m^2 (sqm)

ii) Plinth area rate - 4000/- sqm

iii) Electrification charges – 10% of cost of building

iv) Water supply and sanitary installation – 5% of cost of building.

v) Contingencies – 3% of cost of building

vi) Supervision charges – 2% of over all cost of building.

3. **Attempt any <u>THREE</u> of the following:** **12**

a) Explain centre line method of taking out quantities of work.

b) Draw the standard formate of measurement sheet and abstract sheet.

Marks

c) Work out quantity of 10 mm φ reinforcement in footing shown in Figure No. 1 and prepare schedule of reinforcement.
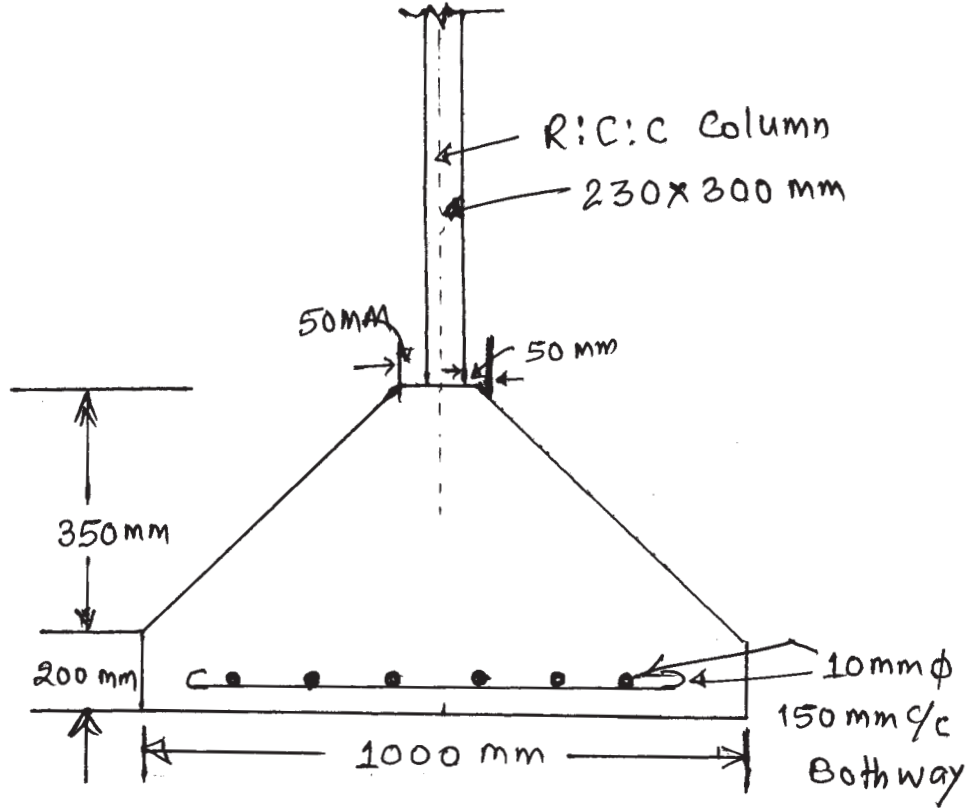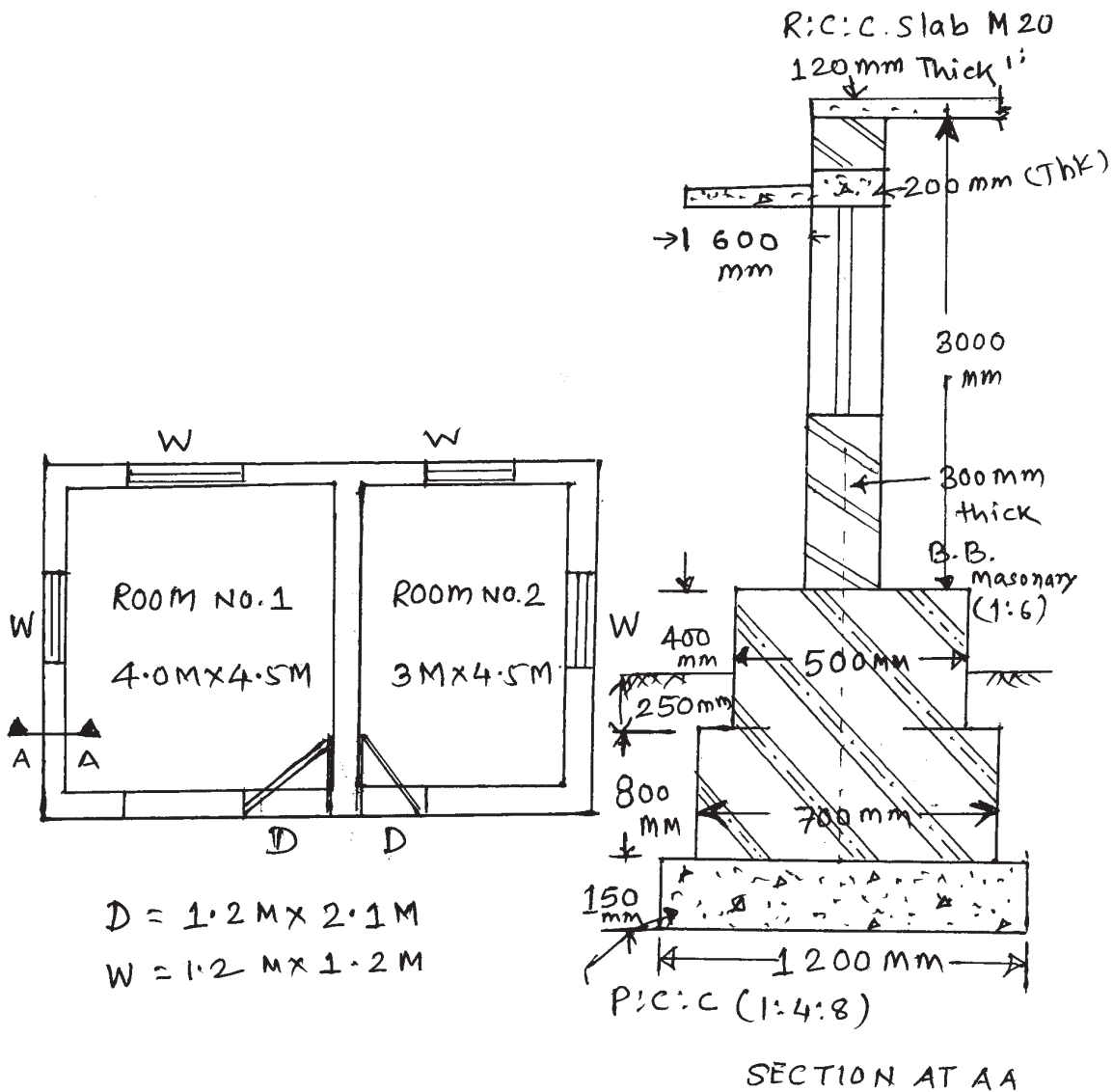

R:C:C Column
230 × 300 mm
50MM
50 mm
350mm
200 mm
10mmφ
150 mm ᶜ/c
Both way
1000 mm

<u>Fig. No. 1</u>

d) State the types of approximate estimate.

Marks

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

a) Calculate the quantities of items of work for Figure No. 2.

   i) Earth work in excavation.

   ii) R:C:C work in roof slab (M20)

Fig. No. 2

b) Calculate the quantity of U.C.R. masonary in C.M. (1:6) in foundation and plinth from Figure No. 2

Marks

c) A simply supported beam resting on two walls supports of 300 mm thick with clear distance between supports 4500 mm the reinforcement provided in the beam as follows. Calculate quantity of steel in beam:

Top bar	Button bar	Bentup bar	Stirups
2 Nos. - 10ϕ	4 Nos. - 12ϕ	2 Nos. - 16ϕ	8ϕ@ 150 $^c/_c$

d) Explain the data required for preparation of detailed estimate.

e) How will you work out quantity of earth work by priz moidal formula with neat sketch.

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

a) Prepare rate analysis for R:C:C slab in cement concrete M_{20} (1:1.5:3)

b) Work out the quantity of following items for septic tank having internal size 1.2 m × 3.0 m and height 1.5 m from Figure No. 3.

   i) Earth work in excavation

   ii) P:C:C (1:3:6)
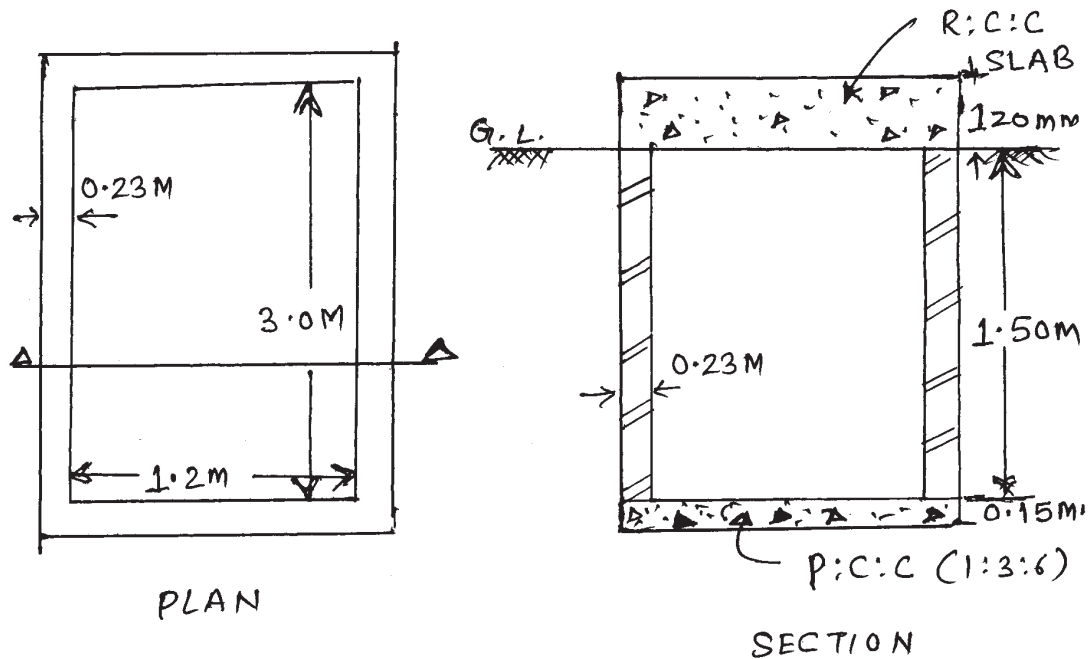
   iii) B.B.M. in C.M. (1:6)

Fig. No. 3

P.T.O.

c) Calculate the quantity of bricks, cement and sand for 100 m^3 brick work having C.M. (1:6).

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

a) Calculate the quantities of earth work for a road with following data:

i) Formation width =10 m

ii) Slope in cutting 1.5:1

iii) Slope in Banking = 2:1.

Chainage in 'm'	0	50	100	150	200
Ground Level	500.00	499.30	498.45	494.90	494.00
Formation Level	496.50	496.00	495.50	495.00	494.50

b) Explain prime cost, provisional sum and task work.

c) Explain administrative approval, technical sanction and budget provision.

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