

# 22503

**22223**

**3 Hours / 70 Marks**

Seat No. 

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- Instructions* –
- (1) All Questions are *Compulsory*.
  - (2) Answer each next main Question on a new page.
  - (3) Illustrate your answers 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 the different types of approximate estimates.
  - c) Give the unit of measurement for
    - i) Excavation
    - ii) P:C:C work (1:4:8)
    - iii) Partition wall 100mm 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's for preparing estimate.

P.T.O.

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

- a) Enlist types of detailed estimate and explain any one.
- b) Explain the multiplying factor's for taking the measurements of painting works for the following.
  - i) A. C. sheet corrugate
  - ii) Fully glazed door
- c) Explain the rules for 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 sqm.
  - ii) Plinth area rate - 3000/- per sqm.
  - iii) Electrification charges - 8% 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 overall cost of building



4. Attempt any THREE of the following:

12

a) Calculate the quantities of items from Fig. No. 2.

- i) Earth work in Excavation
- ii) R:C:C work in roof slab

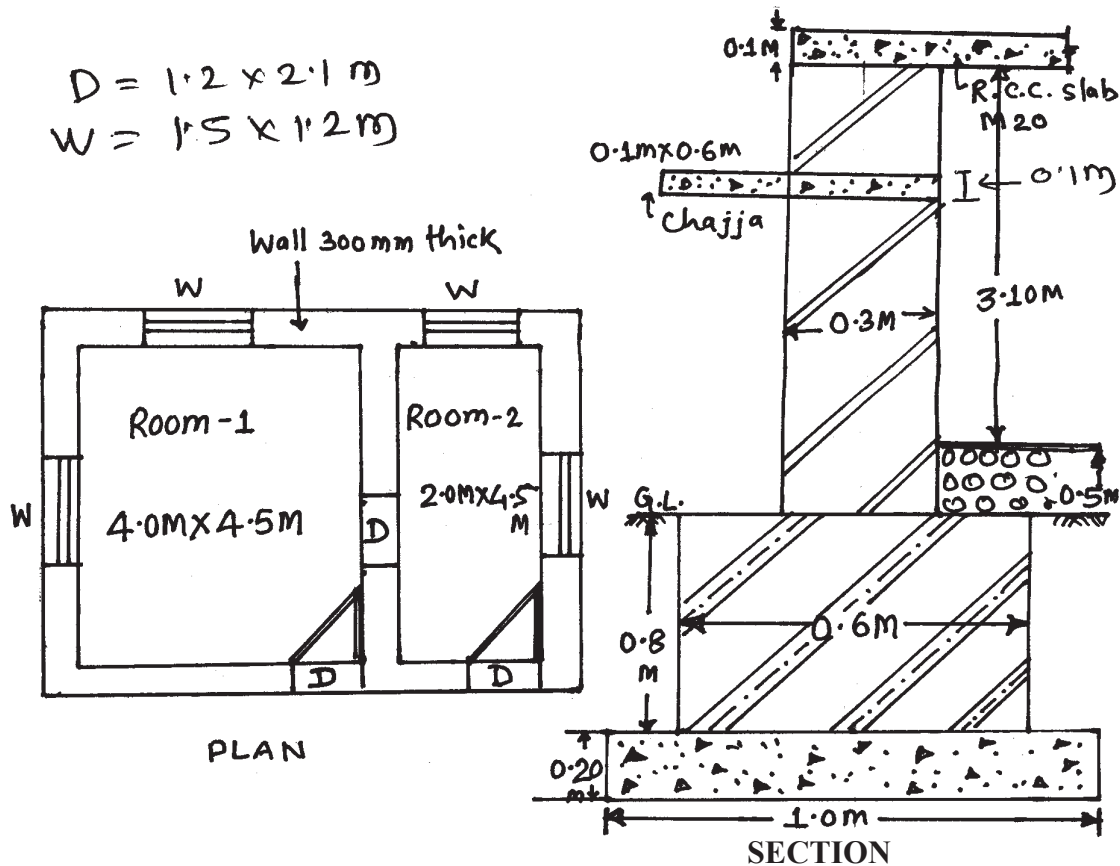


Fig. No. 2

- b) Calculate the quantity of U.C.R masonry in c.m. 1:6 in foundation.
- c) A simply supported beam resting on two wall supports of 300mm thick with clear distance between supports 4500mm. The reinforcement provided in the beam as follows. Calculate quantity of steel in beam.

Top bar	Bottom bar	Bentup bar	Stirups
2 Nos-10 $\phi$	4 Nos - 12 $\phi$	2 Nos-16 $\phi$	8 $\phi$ @ 150 C/Cmm

- d) Calculate the quantity of earth work for a portion of a road in filling an uniform ground with the following data. Assume that there is no transverse slope.

Length of road = 200m, Height of bank at the end = 3m.

Formation width = 10m, side slope in filling = 2:1.

- e) Explain center line method.

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 of quantity of following items for septic tank having internal size 1.2m  $\times$  2.9m and height 1.5m. Refer Fig. No. 3.
- i) P:C:C 1:3:6
- ii)  $M_{20}$  - slab on septic tank

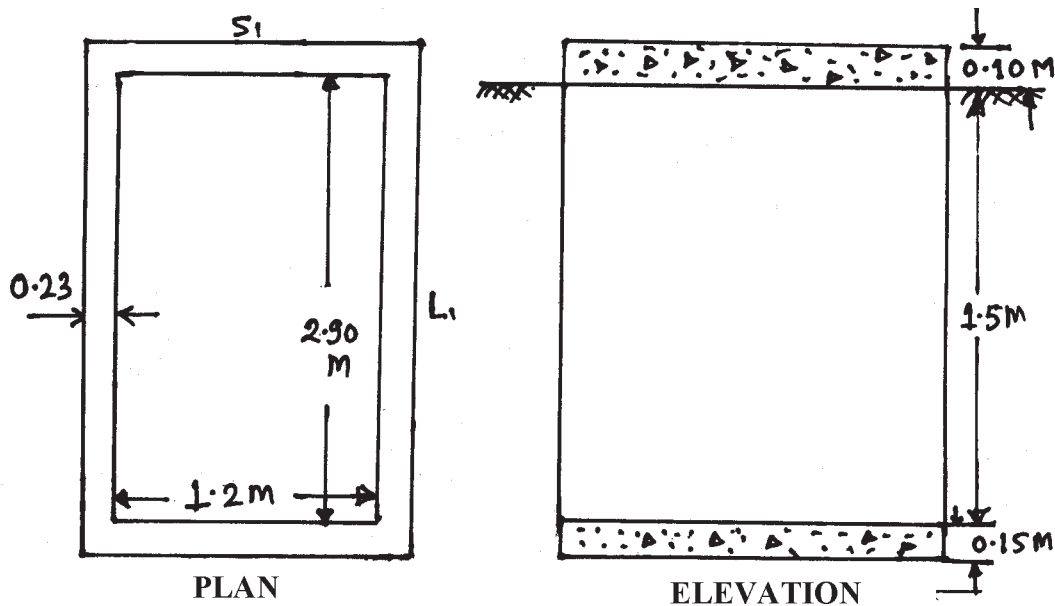


Fig. No. 3

- c) Estimate the quantity of cement, sand and bricks for a wall 6m long, 3m height and 23cm thick with cement mortar (1:5) and size of brick (19cm  $\times$  9cm  $\times$  9cm)

6. Attempt any TWO of the following:

12

- a) Prepare approximation estimate of a factory building from following data :
- Office premises - R.C.C. framed type  
Total area - 120sq.m. built up
  - Workshop - 3 bays of size  
4m × 8m with load bearing walls and A.C. sheet roof.
  - Plinth area rates :  
For R.C.C. building - Rs. 6500/sq.m.  
and load bearing building - Rs. 4000/sq.m.
- b) Work out the quantity of earthwork in hearing and casing for earthen dam given in Fig. no. 4 using following data.

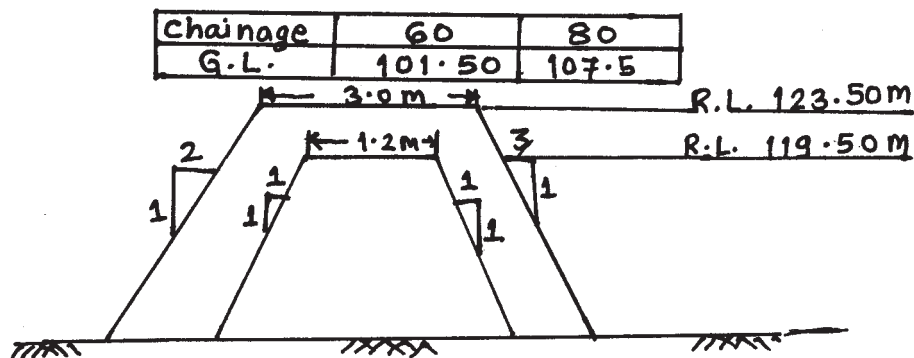


Fig. No. 4

- c) Explain prime cost, provisional sum and task work.