

# 17501

**21819**

**4 Hours / 100 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. a) Attempt any THREE of the following: **12****
- (i) Explain in brief revised estimate and supplementary estimate.
  - (ii) State purpose of estimating and costing.
  - (iii) State service unit for
    - 1) Reservoir
    - 2) Hotel
    - 3) Stadium
    - 4) School
  - (iv) State modes of measurement for
    - 1) Formwork

P.T.O.

- 2) U.C.R masonry
- 3) 10 cm brick wall
- 4) Railing.

b) **Attempt any ONE of the following:**

6

- (i) Draw standard format of measurement sheet abstract sheet and face sheet
- (ii) Prepare approximate estimate of bridge having 5 spans of 45m each using following data:
  - 1) Cost of existing bridge ₹ 1.25 Cr.
  - 2) Existing bridge having 4 spans of 50m each.

2. **Attempt any TWO of the following:**

16

- a) Calculate quantity of earthwork of road using following data.

Formation width 12m

Slope in cutting 1.5:1

Slope in banking 2:1

Use mean area method.

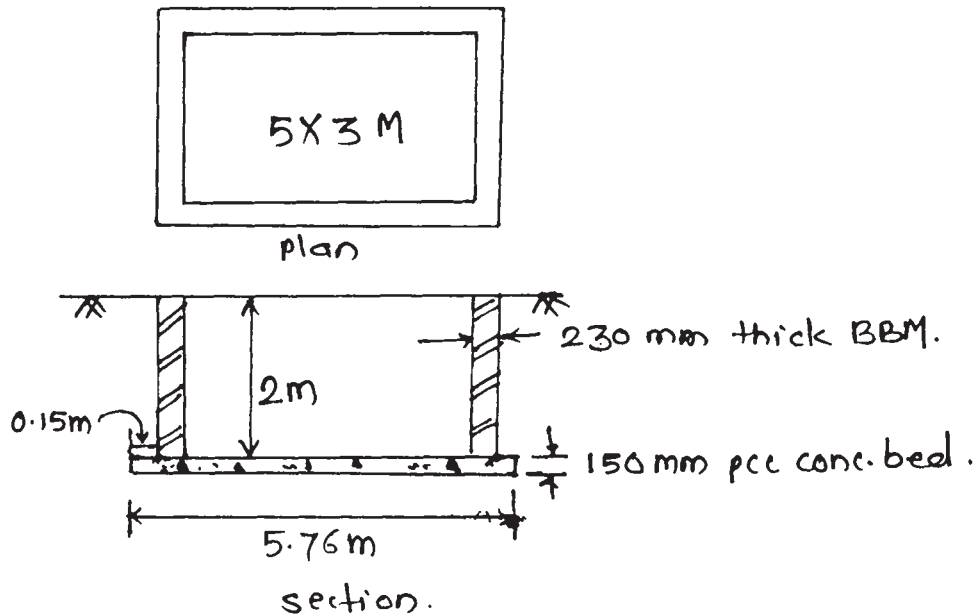
Chainage in M	0	50	100	150	200
Ground level	500.00	499.20	498.42	494.80	494.00
Formation level	496.10	496.00	496.50	495.00	494.60

- b) Describe in brief preparation of approximate estimate for water supply projects.
- c) A RCC beam 230 mm × 300 mm and length 4000 mm is reinforced with 3 no. of 12 mm  $\phi$  main bar placed in one row, out of 3, two bars are straight and one bar is bent up. In addition to this 2 anchor bars to 10 mm  $\phi$  are provided at top. 6 mm  $\phi$  and stirrups are provided at 150 mm C/C. The overall cover provided to beam is 30 mm. Calculate total quantity of steel and prepare bar bending schedule.

3. Attempt any FOUR of the following:

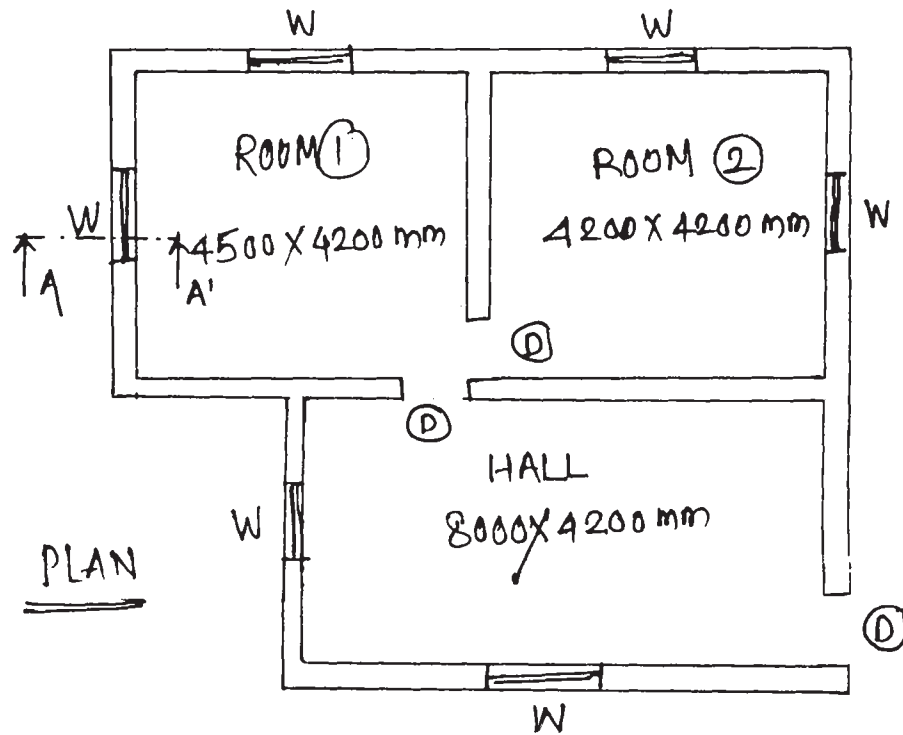
16

- State the rules for deductions of opening as per IS 1200 for brickwork.
- Define rate analysis and state the factors affecting rate analysis.
- Define "Task work". Enlist the factors affecting task work.
- Fig No. 1 shows underground water tank, calculate quantity of
  - Earthwork
  - Brickwork

Fig. No. 1

- Explain in brief lead and lift
- Describe D.S.R state its uses.

4. a) Workout quantities of any three items of work for Fig. No. 2    12
- Earthwork in excavation.
  - UCR masonry in CM 1:6 in foundation and plinth
  - Brickwork in CM 1:5 in superstructure
  - RCC slab for roof ( $M_{20}$  concrete)



All dimensions are in mm  
 $D = 1000 \times 2100$  mm  
 $W = 1500 \times 1200$  mm.

Fig. No. 2

b) Attempt any ONE of the following:

6

- (i) Work out the quantity of concrete and steel in footing for RCC column shown in Fig. No. 3

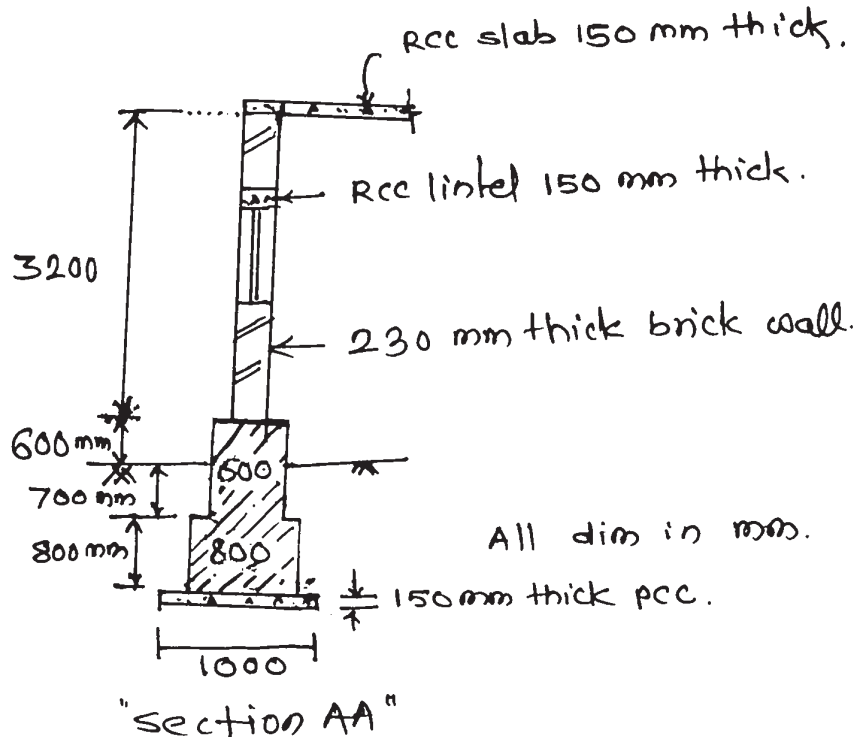


Fig. No. 3

- (ii) Work out the materials required for 50 m<sup>3</sup> brickwork masonry in cement mortar 1:6.

5. Attempt any TWO of the following:

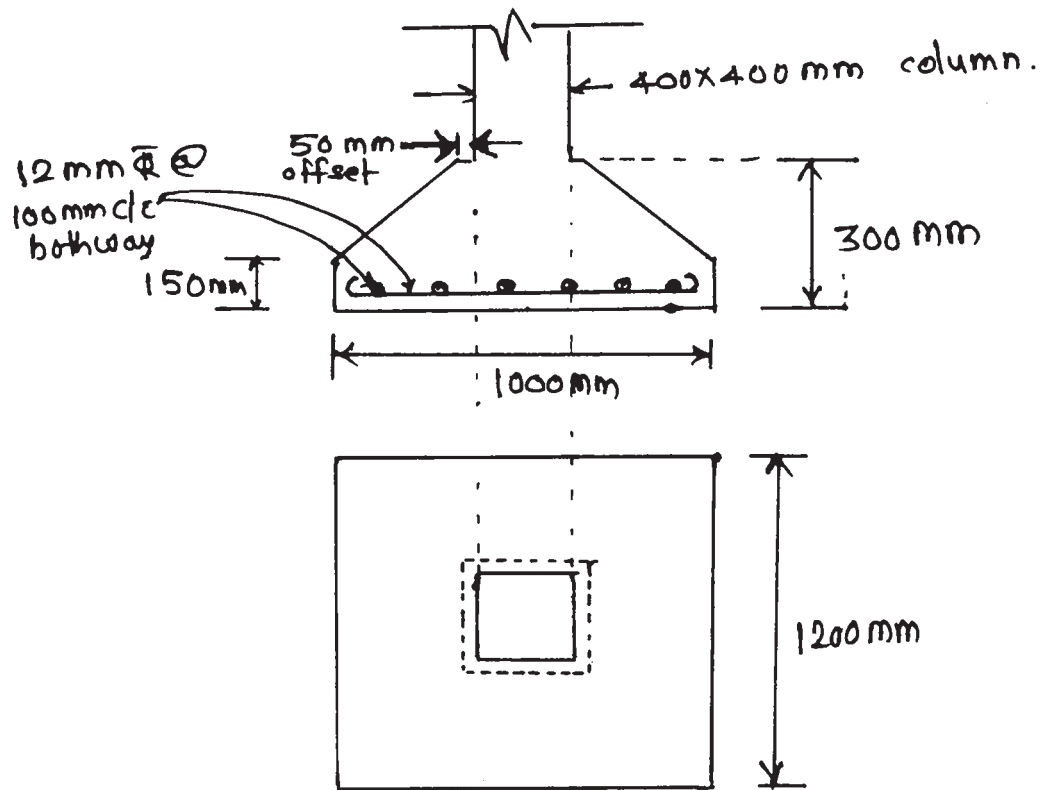
16

- Prepare rate analysis of stone masonry required for foundation and plinth in uncoursed rubble stone in C.M 1:6
- Prepare rate analysis for plastering 12 mm thick in C.M 1:3
- Work out the quantity of following items for septic tank having internal dimension 1.5x3.5m and height 1.5m
  - Earthwork in excavation.
  - P.C.C. (1:3:6) 15 cm thick
  - B.B masonry in CM 1:6 (230 mm thick)
  - M<sub>15</sub> slab on septic tank 12 cm thick. The top of slab of septic tank is 15 cm above ground level.

6. Attempt any FOUR of the following:

16

- State the rules for deduction of plaster works as per IS 1200.
- Explain mid sectional area method for earthwork of road.
- Calculate the quantity of excavation and enter in standard measurement sheet of item of work for community well shown in Fig. No. 4

Fig. No. 4

- d) Calculate the quantity of brickwork and entre in standard measurement sheet of item of work for community well shown in Fig. No. 5

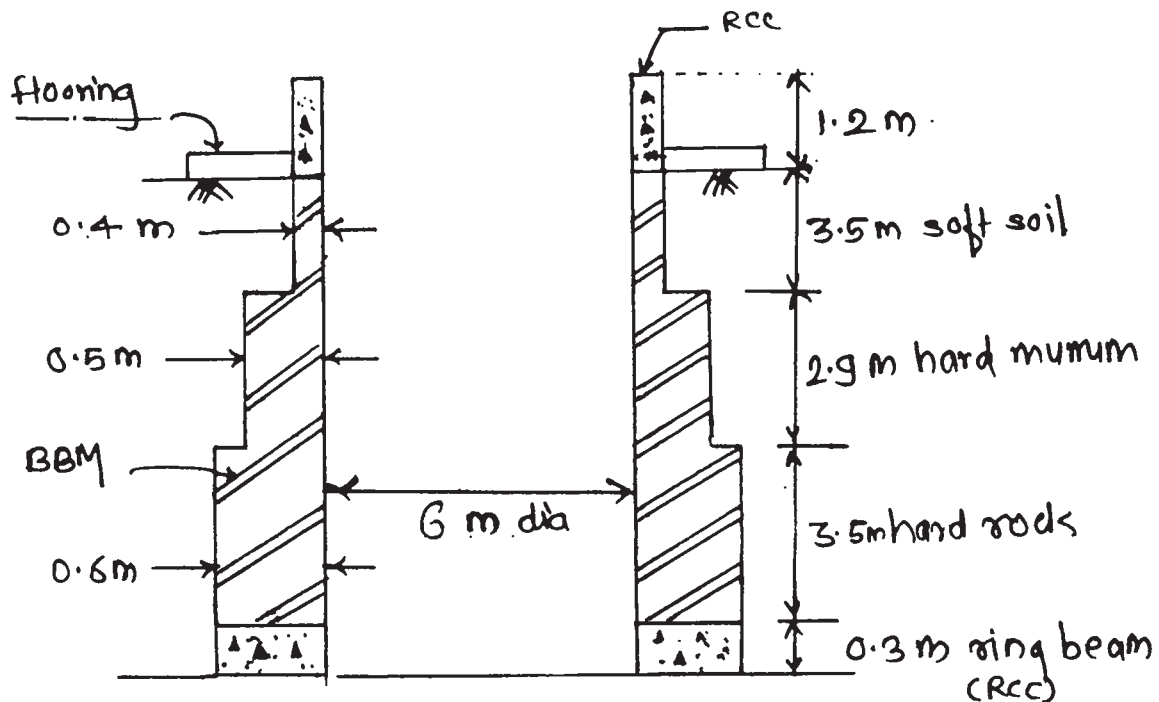


Fig. No. 5

- e) State any four advantages of using softwares/programmes for estimating and costing.
- f) Enlist any eight softwares names used in estimating and costing.