17501

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 <u>THREE</u> of the following:**   **12**

(i) State the meaning of the term estimating and costing.

(ii) Enlist the types of estimate. Mention the situation when revised estimate is prepared.

(iii) State mode of measurements for the following items of work.

1) Barbed wire fencing

2) Skirting

3) Dado

4) Purlins

Marks

    (iv) Prepare approximate estimate of a building using following data.

        1) Proposed area of the building 150 sq.m.

        2) Similar types of building is recently constructed in nearby locality having built-up area 110 sq.m. and the total cost of construction is Rs.12 lakhs.

b) **Attempt any <u>ONE</u> of the following:**   **6**

    (i) Draw the standard formats of measurement sheet, abstract sheet, and face sheet. State use of face sheet.

    (ii) State the rules for deductions as per IS 1200 for

        1) Masonry work in superstructure

        2) Plastering

2.   **Attempt any <u>TWO</u> of the following:**   **16**

a) Describe the procedure for preparing approximate estimate of a water supply project.

b) Prepare approximate estimate of a bridge having 4 spans of 50 m each using following data.

    (i) Cost of existing bridge Rs.1.5 cr.

    (ii) Existing bridge having 3.3 spans of 60 m each.

c) The formation level of road at starting point is 470.00 m. The road surface shall be falling gradient line of 1 to 60 formation width of road is 12 m. Side slope 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
R.L. of G.L. in m	465.00	467.20	468.10	468.20	469.70	469.00

    Calculate the quantity of earthwork. For road using Mean Sectional Area Method.

Marks

3.   **Attempt any <u>FOUR</u> of the following:**   **16**

a) How will you prepare estimate for irrigation canal?

b) Describe D.S.R. State its uses.

c) Give the hire charges for following machinary/equipments.

    (i)   Concrete mixer

    (ii)   Dumper

    (iii) Vibrator

    (iv) JCB

d) State the desired accuracy in taking measurement of work as per IS 1200.

e) Explain the long wall and short wall method for taking out quantities.

f) State purpose of supplementary estimate. Give one example.

4.   a) **Work out quantities of the following any <u>THREE</u> items of work from Figure No. 1.**   **12**

    (i)   Excavation for foundation

    (ii)   Brick work in super structure in cm (1:6)

    (iii) Internal plaster in c.m. (1:4)

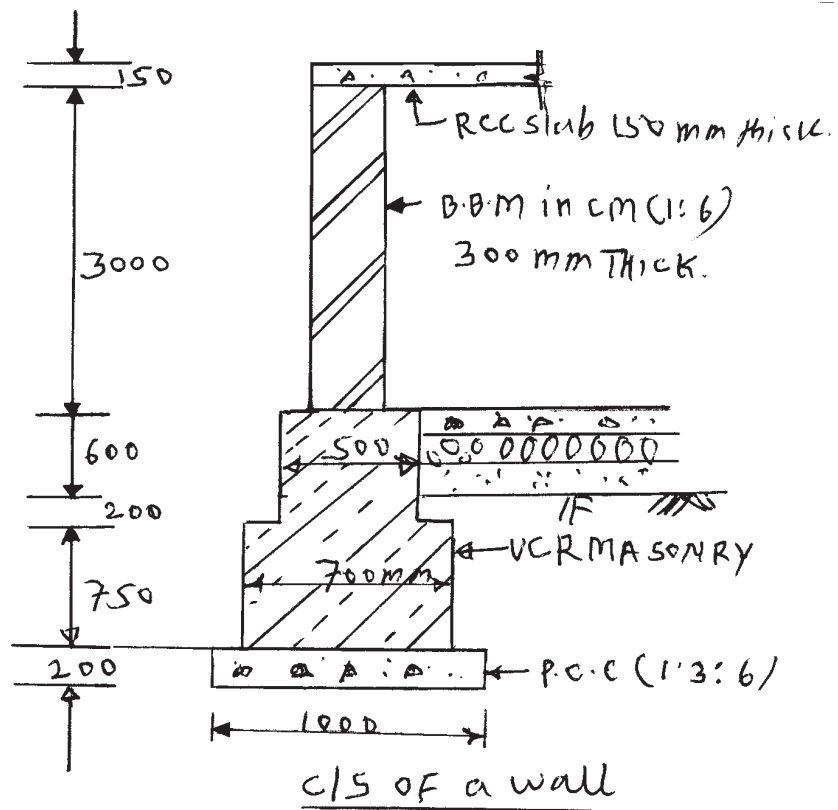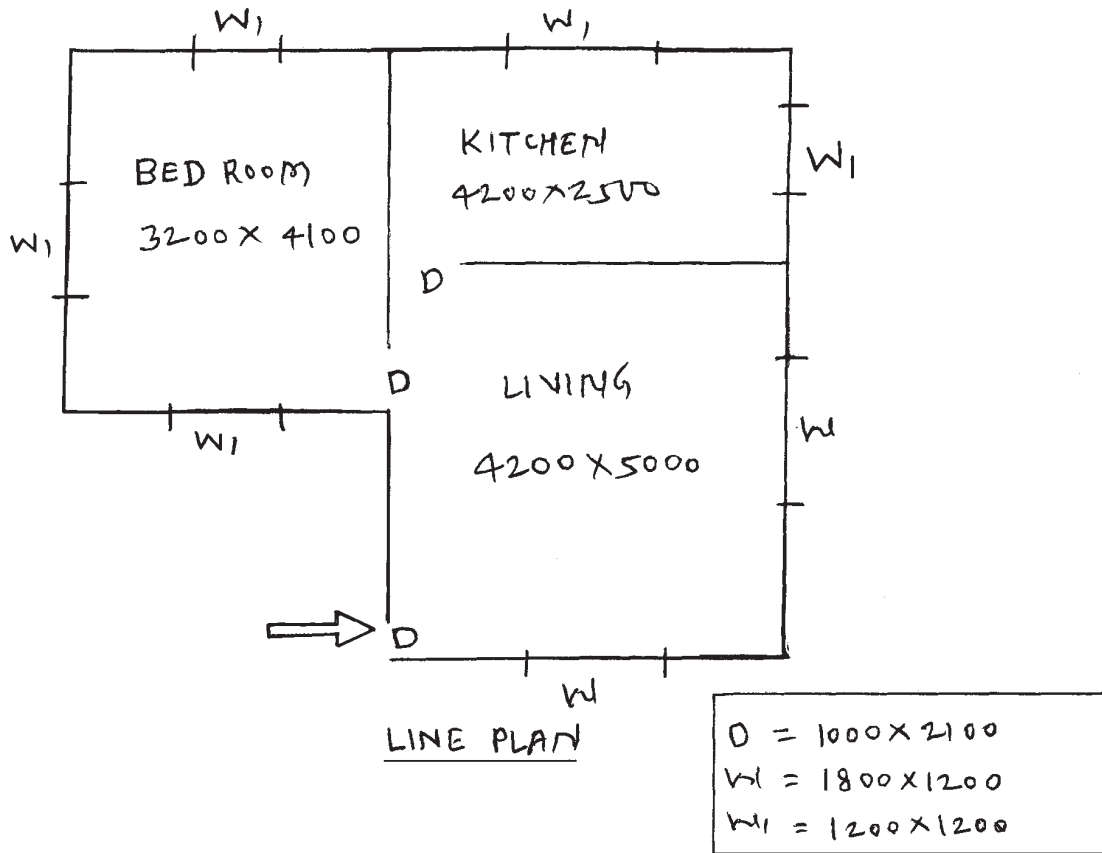   (iv) R.C.C. slab (1:2:4)

BED ROOM
3200 × 4100

W₁

W₁

KITCHEN
4200 × 2500

W₁

D

D

LIVING

4200 × 5000

W₁

D

W

LINE PLAN

D = 1000 × 2100
W = 1800 × 1200
W₁ = 1200 × 1200

150

3000

600

200

750

200

RCC slab 150 mm thick.

B.B.M in CM (1:6)
300 mm Thick.

500

IF

UCR MASONRY

700 mm

P.C.C (1:3:6)

1000

C/S of a wall

Fig. No. 1

Marks

b) **Attempt any <u>ONE</u> of the following:**   **6**

    (i)   Find out the quantities of cement, sand and aggregate for R.C.C. 1:2:4 work of 25 cu.m quantity.

    (ii) A R.C.C. simply supported beam of size 295 mm × 645 mm is reinforced with 4 Nos. of 20 mm diameters main bars are placed in one row and two bent up. Two Anchor bars of 12 mm diameter are provided at top. 8 mm diameters stirrups are provided at 140 mm c/c. The overall beam length is 6 m. Calculate the total quantities of the steel required. Show bar bending schedules.

5.   **Attempt any <u>TWO</u> of the following:**   **16**

  a) Prepare rate analysis for plain cement concrete of grade M15 (1:2:4).

  b) Workout the quantity of the following items. For septic tank having internal size 1.6 m × 3.8 m having height 1.5 m. The top of slab of septic tank is 20 cm. above G.L.

    (i)   Earthwork in Excavation

    (ii) P.C.C. (1:3:6) 15 cm thick.

    (iii) B.B. Masonry in C.M. (1:6) of 200 mm thick.

    (iv) R.C.C. slab (1:2:4) on septic tank 12 cm thick.

  c) Prepare the rate analysis for U.C.R. masonry in c.m. (1:4) in foundation.

6.   **Attempt any <u>FOUR</u> of the following:**   **16**

  a) Define 'Task work'. Enlist any four factors affecting task work.

  b) State the names of software that are used for preparation of detailed estimate of building work.

  c) What are the different methods used for calculation of earthwork quantities for a road and canal? Explain any one.

  d) Define rate analysis and state the factors affecting rate analysis.

Marks

e) Calculate the quantities of following items of work for a circular community well as shown in Figure No. 2.

   (i)   Excavation in Soft Murum.

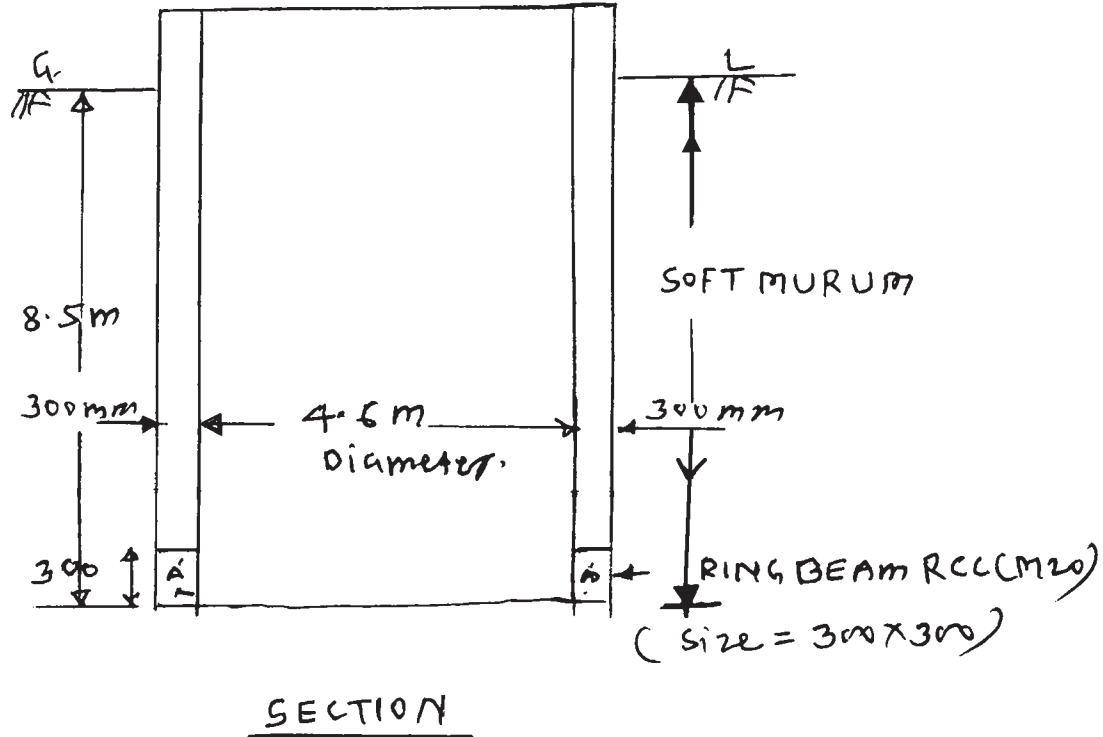   (ii) R.C.C. Ring Beam quantity of concrete.

SECTION

Fig. No. 2

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