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 THREE of the following:**   **12**

(i) State the purpose of estimating and costing.

(ii) Differentiate between Revised and Supplementary estimate.

(iii) State the modes of measurement for following item of work:

(i) Skirting

(ii) Expansion joint

(iii) Dado

(iv) Brick wall (100 mm thick)

(iv) Explain the long wall and short wall method for calculating items of work.

(v) State any four advantages of using software programmes for estimating and costing.

Marks

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

    (i) Draw the format for measurement sheet and abstract sheet, face sheet.

    (ii) The cost of construction of Govt. Polytechnic Nanded Building is 2 crores for a capacity of 500 students and area of construction about 2000 m^3. Prepare approximate estimate of a newly proposed of Govt. Polytechnic Building for 1200 students with the area 5000 m^3.

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

  a) State the rule for deduction in plastering as per IS-1200.

  b) Explain the terms:
    (i) Contingencies
    (ii) Provisional sum

  c) Give the market rate for following materials:
    (i) C.C. teakwood
    (ii) Cement bags
    (iii) Course aggregates (20 mm)
    (iv) Reinforcement (steel)

  d) State factors affecting rate analysis.

  e) Enlist any eight softwares available for civil engineering estimates.

  f) State the different methods of approximate estimate. Explain any one.

3. a) **Attempt the following:**   **12**

    Workout quantities of following any three items and enter the same is standard format for measurement sheet with description of item Refer Fig. No. 1 (any four):

    (i) Earthwork in excavation
    (ii) P.C.C. in foundation bed
    (iii) U.C.R. masonry in foundation and plinth
    (iv) Brick masonry
    (v) Internal plaster
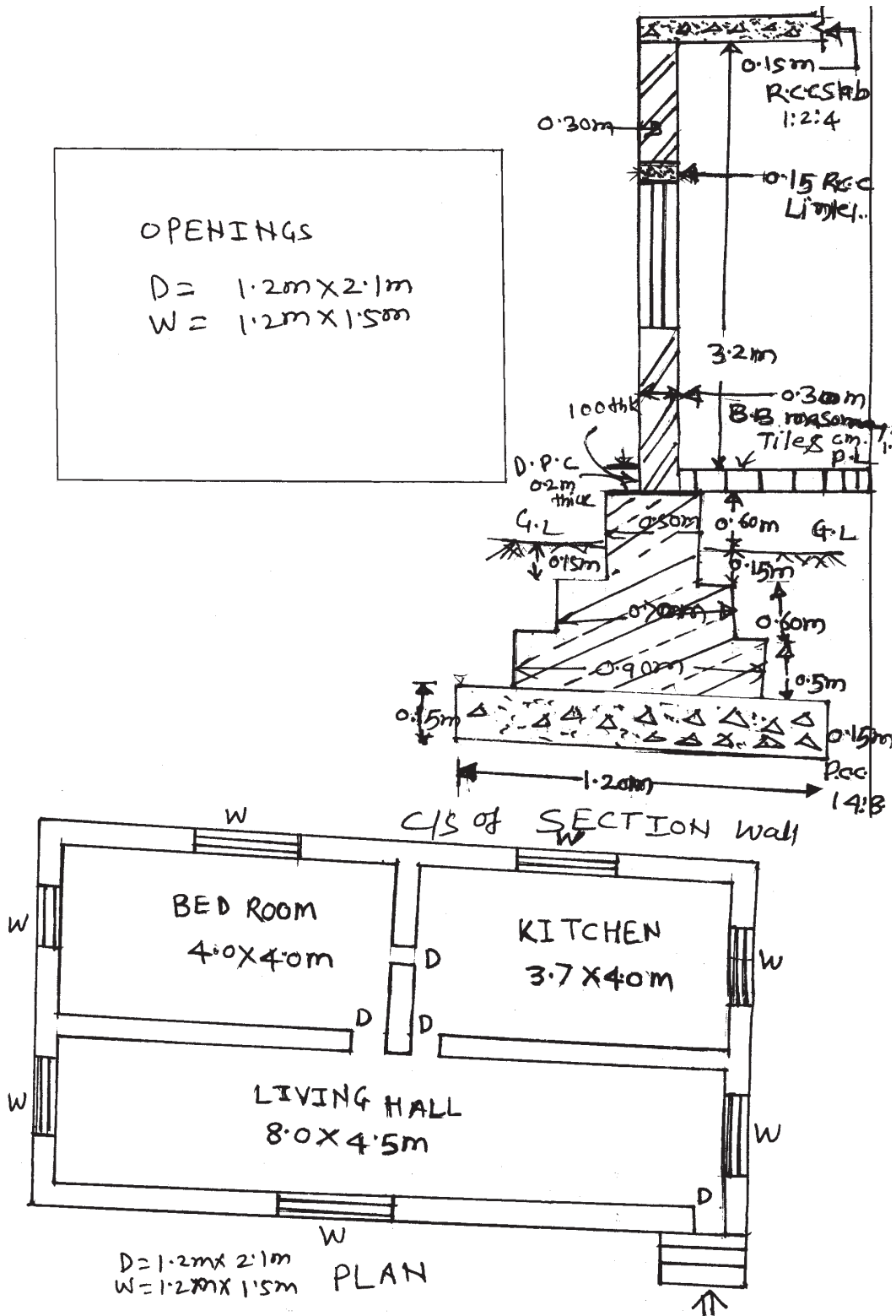   (vi) Flooring

Fig. No. 1

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

  (i) Calculate the quantities of earth-work in cutting and in banking for a portion of road with following data:

    1) Formation width of road is 12 m

    2) Formation level of starting chainage is 51.50 m

    3) The road surface shall be given a falling gradient of 1 in 200

    4) Side slope are 1V : 2H in banking and 1V : 1.5H in cutting

Chainage in m	0	30	60	90	120	150	130
G.L. in m	50.80	50.60	50.70	51.20	51.40	51.30	51.00

  (ii) Workout the quantities of m.s reinforcement for the following and tabulate in a bar bending schedule format prepare

Member	Overall Size	Details of reinforcement
Beam	4 m long (230 × 230) mm section	a) Main bar 12 mm and 4 Nos. 2 straight and 2 bentup (45°) b) Anchor bars 10 mm and 2 Nos. c) Stirrups - 6 mm and at 150 mm c/c.

Marks

4. **Attempt any TWO of the following:** 16

a) R.C.C. slab of overall size 5500 mm × 3000 mm and thickness 175 mm is provided with 12 mm main bars bent-up alternately and placed at distance 150 mm c/c. The distribution steel of 8 mm diameter is provided at distance 200 mm c/c. Find out the quantity of steel, prepare bare bending schedule take cover 15 mm.

b) Calculate the quantity of excavation and UCR masonry work and enter in standard measurement sheet with brief description of item of work for community well as shown in Fig. No. 2.
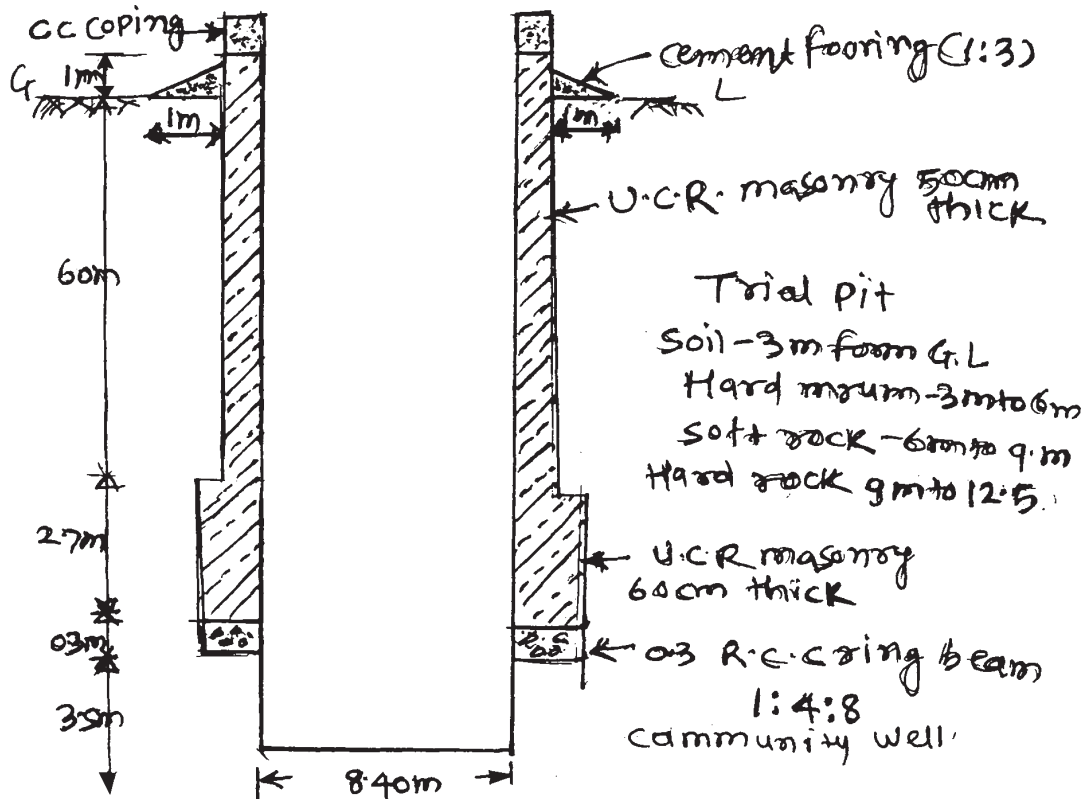

Fig. No. 2

c) Prepare rate analysis for brick work in superstructure in c.m (1:6) proportion.

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

a) Prepare rate analysis for 12 mm thick cement plastering in cement mortar (1:4).

b) Workout the quantity of following items for sepetic tank having internal size 1.8 m × 4.2 m and height 1.6 m top of slab of sepetic tank is 20 cm above G.L. Assume stable data:

   (i)   Earthwork in excavation

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

   (iii)   B.B masonry in cm 1:6 proportion (300 mm thick)

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

c) (i)   State significance of checklist while preparing detail estimate.

   (ii)   Define:

      1)   Day work

      2)   Lead and lift

      3)   Work change establishment

      4)   Task work

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

a) How will you consider electrification work, plumbing work in estimation?

b) Define rate analysis, state purpose of rate analysis.

c) Write down the approximate percentage of steel required for various R.C.C. members.

d) Explain prismoidal formula method for finding earth work for road.

e) Define:

   (i)   Centage charges

   (ii)   Prime cost

   (iii)   Load factor

   (iv)   Task work

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