17501

14115

4 Hours/100 Marks

Seat No. | | | | | | | | |

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****.*

MARKS

1. A) Attempt **any three** of the following : **12**

   a) State any four purposes of detailed estimate.

   b) Enlist the types of approximate estimate. Explain service unit method of approximate estimate.

   c) The plinth area of a proposed building is 390 sq. m. The known cost of construction for similar structure is Rs. 19,35,000 having plinth area 215 sq. m. Calculate approximate cost of proposed building.

   d) State modes of measurement for following items of work :

      i) Iron gate

      ii) Wood work for door frame

      iii) Pointing

      iv) Skirting.

MARKS

B) Attempt **any one** of the following : **6**

a) State the rules of deductions as per IS 1200 for

i) Plastering

ii) Masonry work in super structure.

b) Explain the following terms :

i) Provisional sum

ii) Prime cost

iii) Day work.

2. Attempt **any two** of the following : **16**

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

b) Prepare approximate estimate from following data for a school building :

i) Number of classroom – 12

ii) Area of each classroom – 50 m^2

iii) Area of other facilities – 150 m^2

Similar school building having same specification and having built up area of 750 m^2 was constructed at Rs. 71,25,000.

c) The formation level of a road at starting point is 470.00 m. The road surface shall be falling gradient line of 1 to 60. Formation width of the 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. C. of G. L. in m	466.50	467.20	468.10	468.20	469.70	469.00

Calculate the quantity of earth work for road using mean sectional area method.

MARKS

3. Attempt **any four** of the following : **16**

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

   b) State necessity of rate analysis.

   c) Define :

      i) Task work

      ii) Lead and lift.

   d) Give market rates for following materials :

      i) Sand

      ii) 12 mm steel

      iii) Oil paint

      iv) Cement bag.

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

4. A) Workout quantities of following **any three** items of work from Fig. No. 1 : **12**

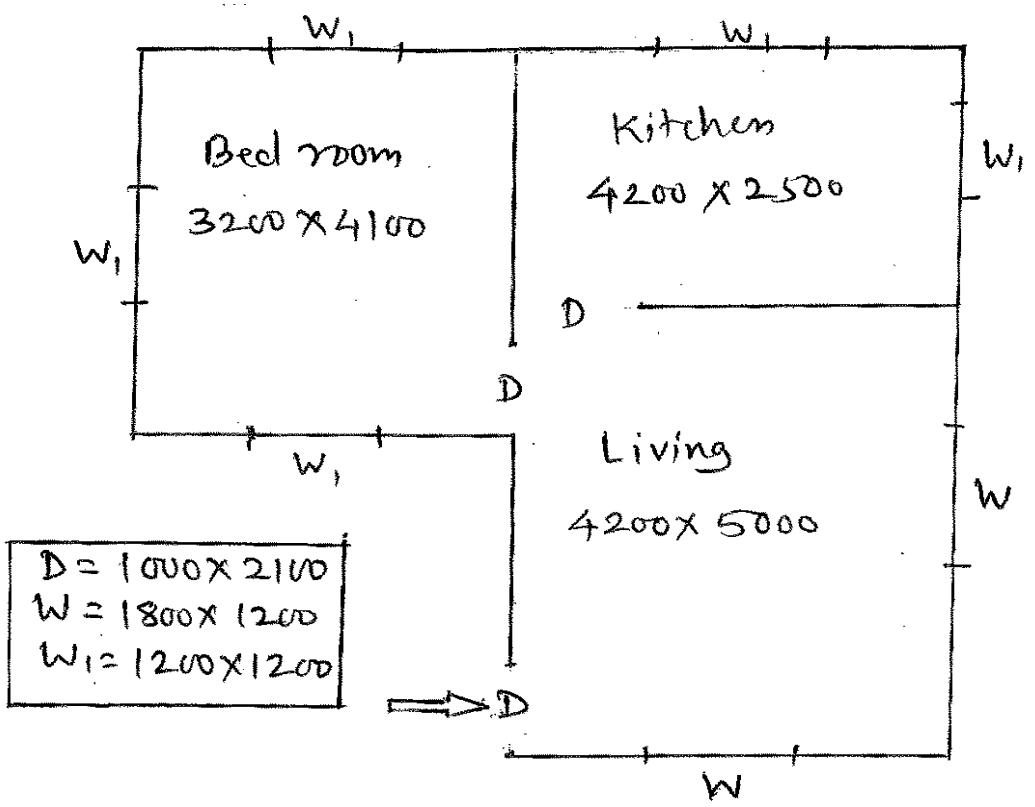
      a) Excavation for foundation.

      b) Brickwork in super structure in C.M. (1 : 6).

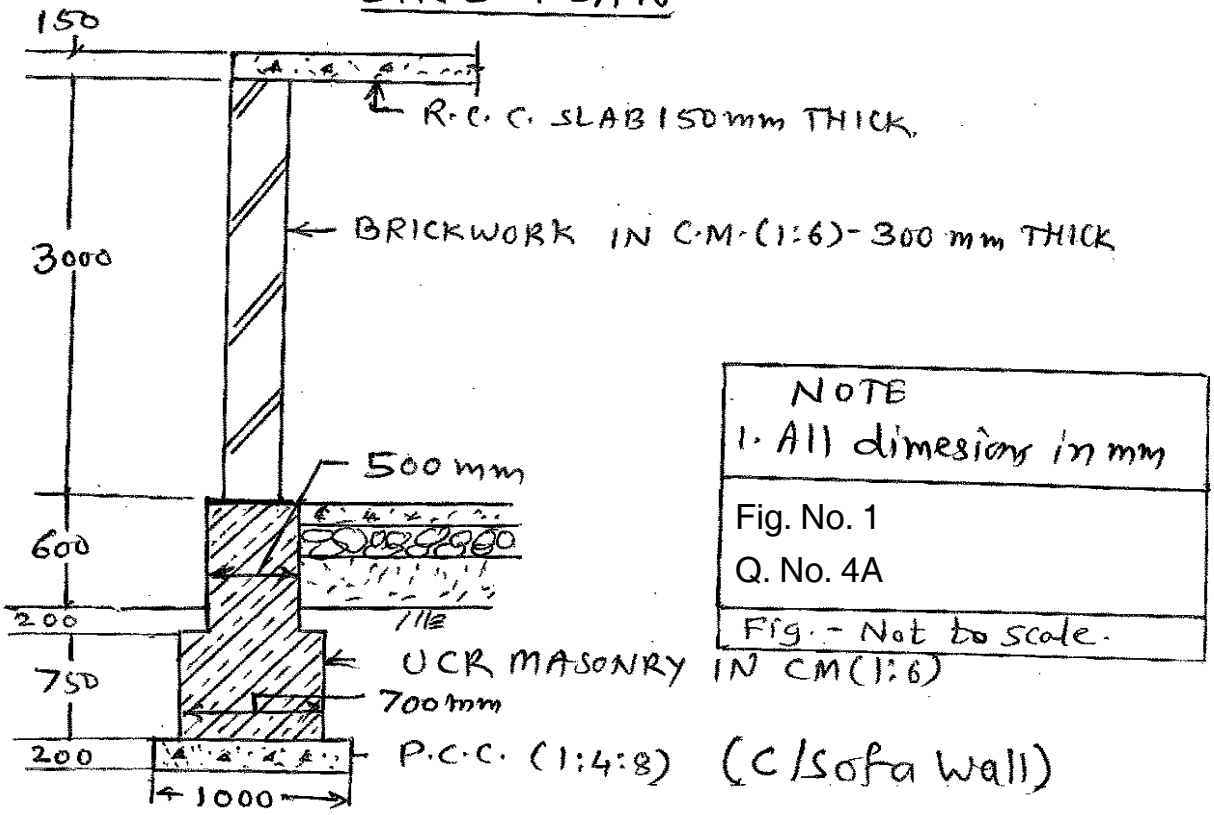
      c) Internal plastering.

      d) R.C.C. for slab (1 : 2 : 4).

MARKS



LINE PLAN



NOTE
1. All dimesions in mm

Fig. No. 1
Q. No. 4A

Fig. - Not to scale.

MARKS

B) Attempt **any one** of the following : **6**

a) A R.C.C. beam 300 mm wide and 450 mm deep and length 5000 mm is reinforced with 4 number of 12 mm ϕ bar placed in one row, out of 4, 2 bars are straight and 2 bars are bent up respectively. In addition to this, 2 anchor bars of 10 mm diameter are provided at top. 6 mm ϕ stirrups are provided at 150 mm C/C. The overall cover provided to the beam is 25 mm. Calculate the total quantity of steel and also prepare bar bending schedule.

b) Calculate the quantity of cement, sand and course aggregate for 80 m^3 cement concrete having proportion (1 : 1.5 : 3).

5. Attempt **any two** of the following : **16**

a) Prepare rate analysis for R.C.C. (1 : 2 : 4).

b) Prepare rate analysis for brickwork in super structure in c.m. (1 : 6) proportion.

c) Workout the quantity of following items for septic tank having internal size 1.8 m × 4.2 m and height 1.6 m. The top of slab of septic tank is 20 cm above G.L.

i) Earth work in excavation.

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

iii) B. B. Masonry in c.m. (1 : 6) proportion (300 mm thick).

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

MARKS

6. Attempt **any four** of the following : **16**

a) Draw standard format of measurement sheet and abstract sheet.

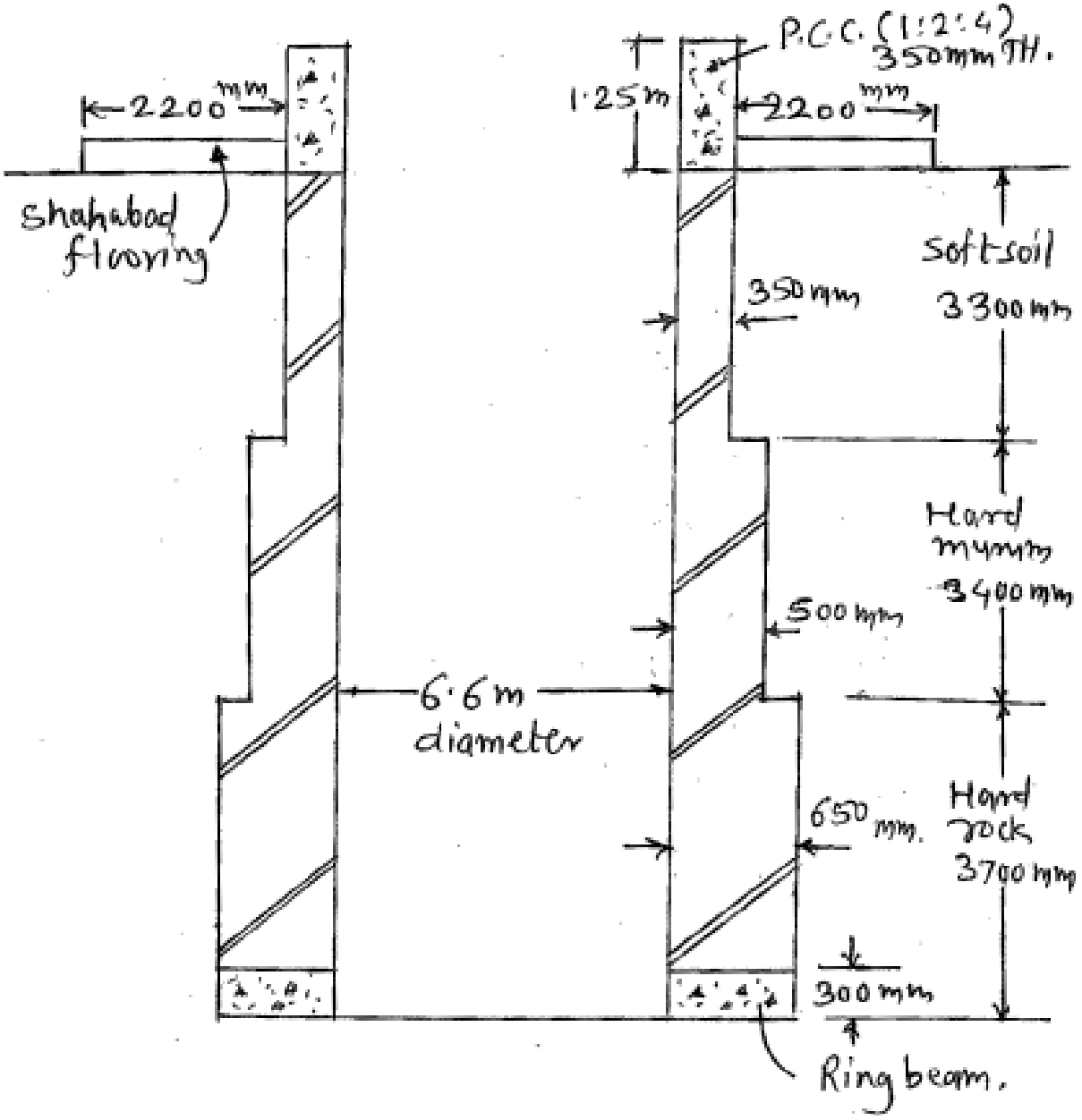
b) Describe long wall and short wall method for calculating quantities of items of work.

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

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

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

MARKS



Section of Community Well

Fig No. 2 Q. No. 6

(Fig. Not to Scale)
