# 3rd Sem./ Civil/ 2021(W)

## TH 4 Estimation & Cost Evaluation-I

Full Marks: 80 Time- 3 Hrs

Answer any five Questions including Q No.1& 2
Figures in the right hand margin indicates marks

1. Answer **All** questions 2 x 10

a. State the actual and nominal size of a standard modular bricks .

b Mention the multiplying factor for painting work in case of fully glazed window and flush door.

c. What do you mean by out turn?

d When centre line method of estimating is preferred?

e Calculate the amount of plastering required for a 5mX 4m room having 30 cm thickness and 3m height?

f. Define Lead and Lift.

g Calculate the additional length of bent up bar for 45* cranked bar?

h Write down the units of the following items
i. Honey comb brick work
ii. Collapsible gate
iii.Stone Masonary
iv.Flooring

i. Classify labourers according to OPWD.

j. What is the standard weight of 20mm dia. Bar of 1m length?

2 Answer **Any Six** Questions 5x6

a. Calculate the quantity of dry material for $10m^3$ of cement concrete with proportion 1:3:6 ?

b Draw the hierarchy of Engineering department in State Govt.

c. Calculate the quantities of dry material required for 100sqm ,12mm thick plastering with proportion 1:6 ?

d Mention the duties and responsibilities of Assistant Engineer.

e. Calculate Sal wood work in chowkhat for door and window size of 1.2mX2.1m and 1mX1.5 m? Size of chowkhat 10cmX 8cm .Assume any suitable data.

f. Estimate the following items from Fig No 1 by centre line Method. 2 ½ +
i.Earth work in Excavation
ii.Brick work in foundation and plinth 2½

g Calculate the dry materials required for $450m^2$ of 25mm thick DPC in cement concrete of Proportion ( 1:1.5:3 )?

3 Calculate the following items of work from Fig No 2. 5+5
i.Earthwork in excavation in foundation.
ii. Earth work in filling in plinth..

4 Calculate the cost of 10cum of brickwork in foundation and plinth with 20×10×10cm brick with cement sand mortar 1:6 ?

5 Estimate the quantities of the following items of a residential building from fig-3 6+4
   i. First class brick work in foundation and plinth.
   ii. 2.5 cm Damp proof course.

6 Estimate the quantities of the following items of a building from fig-4 6+4
   iii. 12 mm thick inside plastering in walls (1:6)
   iv. Painting doors and windows

7 Write short notes on : [5X2] 2 ½ x 4
   (a) Plinth area Estimate
   (b) Contigency
   (c)Work charged establishment.
   (d) Scrap value and Salvage Value

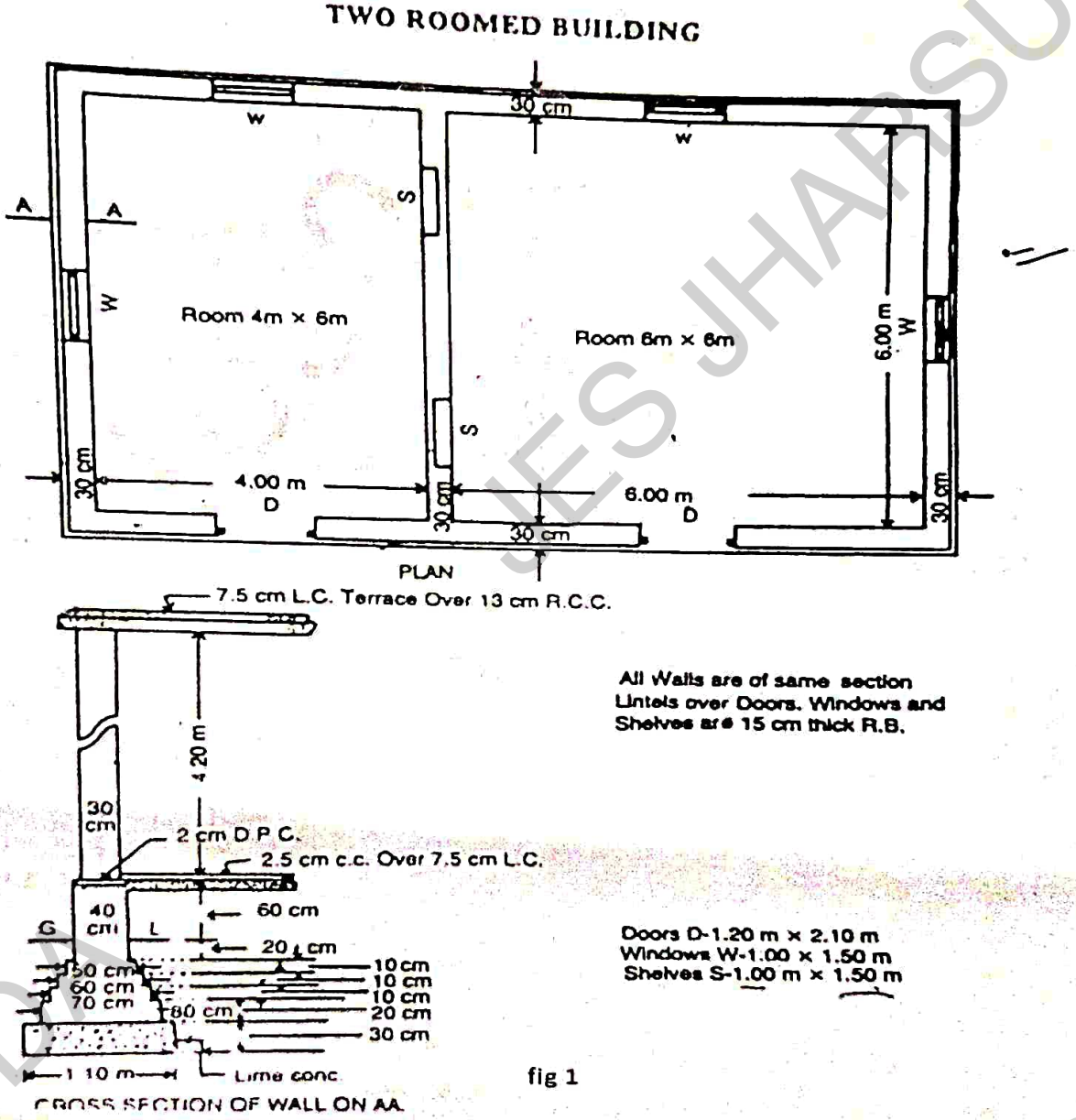



fig 1

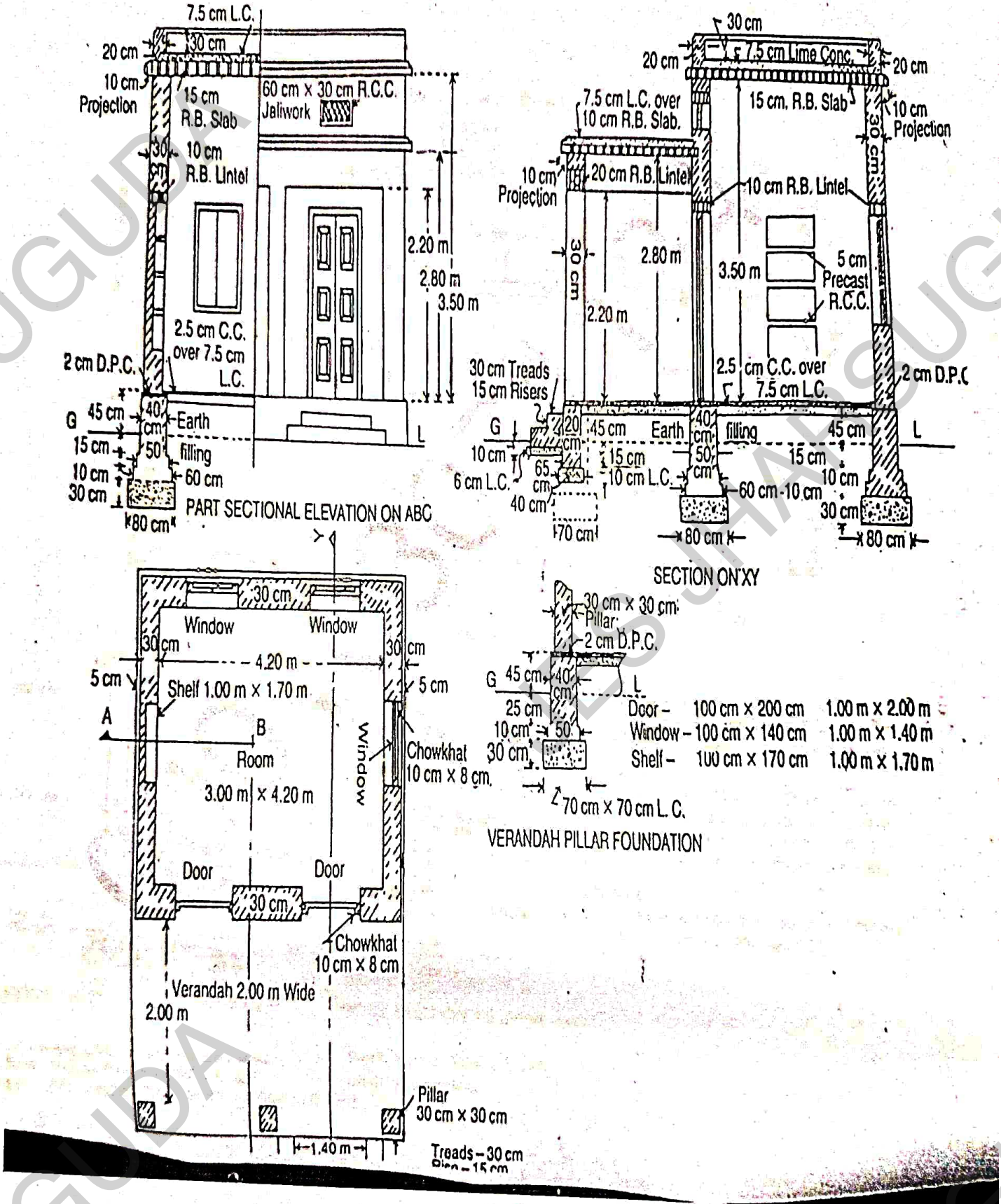
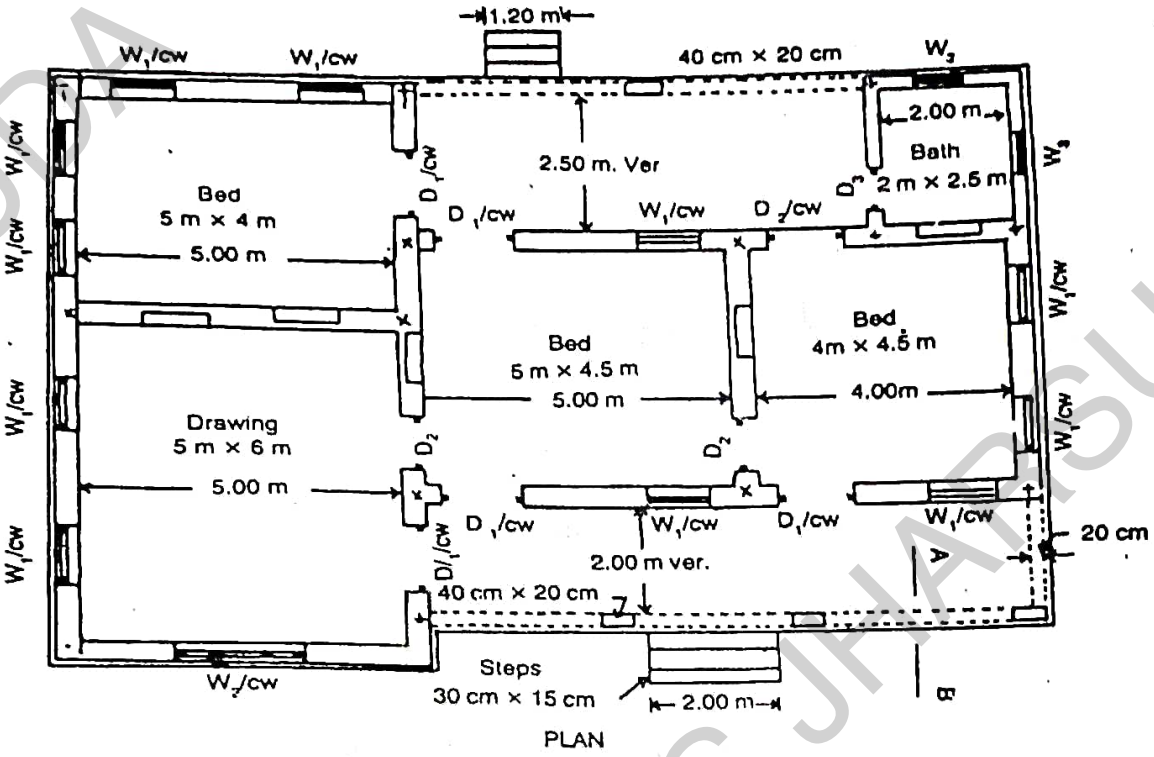
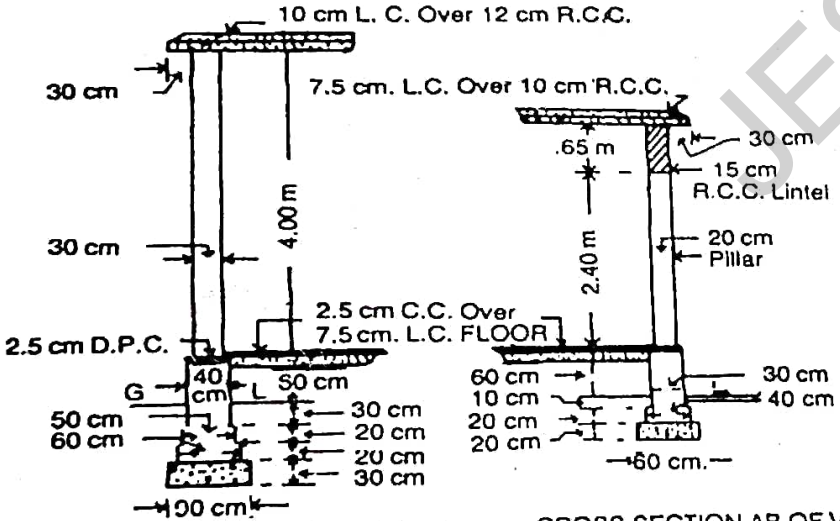

7.5 cm L.C.
30 cm
20 cm
10 cm Projection
15 cm R.B. Slab
60 cm x 30 cm R.C.C. Jaliwork
10 cm R.B. Lintel
2.20 m
2.80 m
3.50 m
2.5 cm C.C. over 7.5 cm L.C.
2 cm D.P.C.
G
45 cm
40 cm
Earth
15 cm
50 cm
filling
10 cm
60 cm
30 cm
80 cm
PART SECTIONAL ELEVATION ON ABC
30 cm
7.5 cm Lime Conc.
20 cm
7.5 cm L.C. over 10 cm R.B. Slab.
15 cm. R.B. Slab
10 cm Projection
10 cm Projection
20 cm R.B. Lintel
10 cm R.B. Lintel
30 cm
2.80 m
3.50 m
2.20 m
5 cm Precast R.C.C.
30 cm Treads
15 cm Risers
2.5 cm C.C. over 7.5 cm L.C.
2 cm D.P.C
G
10 cm
20 cm
45 cm
Earth
40 cm
filling
45 cm
L
15 cm
50 cm
15 cm
6 cm L.C.
65 cm
10 cm L.C.
10 cm
40 cm
60 cm
10 cm
30 cm
70 cm
80 cm
80 cm
SECTION ON XY
30 cm
Window
Window
30 cm
4.20 m
30 cm
5 cm
5 cm
Shelf 1.00 m x 1.70 m
A
B
Room
3.00 m x 4.20 m
Window
Chowkhat 10 cm x 8 cm
Door
Door
30 cm
Chowkhat 10 cm x 8 cm
Verandah 2.00 m Wide
2.00 m
Pillar 30 cm x 30 cm
1.40 m
Treads – 30 cm
30 cm x 30 cm
Pillar
2 cm D.P.C.
G
45 cm
40 cm
L
25 cm
10 cm
50 cm
30 cm
70 cm x 70 cm L.C.
Door – 100 cm x 200 cm 1.00 m x 2.00 m
Window – 100 cm x 140 cm 1.00 m x 1.40 m
Shelf – 100 cm x 170 cm 1.00 m x 1.70 m
VERANDAH PILLAR FOUNDATION

**Fig 2**

## RESIDENTIAL BUILDING




PLAN




CROSS SECTION OF MAIN WALLS

CROSS SECTION AB OF VER.WALL

Doors:-
$D_1$ – 120 cm × 210 cm (1.20 m × 2.10 m)
$D_2$ – 100 cm × 200 cm (1.00 m × 2.00 m)
$D_3$ – 75 cm × 180 cm (.75 m × 1.80 m).

Windows:-
$W_1$ – 100 cm × 150 cm (1.00 m × 1.50 m)
$W_2$ – 200 cm × 150 cm (2.00 m × 1.50 m)
$W_3$ – 75 cm × 120 cm (.75 m × 1.20 m)
C.W. – 75 cm × 60 cm (.75 m × .60 m).

Shelves:-
S – 100 cm × 150 cm (1.00 m × 1.50 m)
Lintel Over Doors, Windows Etc.
15 cm R.B.

All walls of Drawing Rooms and Bed Rooms have same section

Bath Room Walls have similar section

***Note—No beam has been shown in the plan.***

fig 3

Answer any five Questions including Q No.1& 2 Time- 3 Hrs
Figures in the right hand margin indicates marks

1. Answer **All** questions 2 x 10
   a. Define Depreciation and Obsolescence.
   b. Write down the volume and weight of one bag of cement.
   c. Write down the unit of following items.
      (i) Earthwork in filling (ii) lime concrete terracing
   d. Define floor area of a building.
   e. What do you mean by lead and lift?
   f. Calculate the standard weight of 20mm diameter bar of 1 meter length.
   g. What do you mean by sinking fund?
   h. What do you mean by AR estimate?
   i. Draw the details of measurement form used in estimate.
   j. Classify the labours as per OPWD and also mention their rates.

2. Answer **Any Six** Questions 6 x 5
   a. Write the duties of Junior Engineer.
   b. Calculate the dry materials required for 500$m^2$ of cement plaster (1:6) of 12mm thickness.
   c. Describe briefly about different types of values of a structure.
   d. Calculate the cost of construction of 8 $m^3$ of brickwork (1:4) using standard bricks of size 19c.m×9c.m×9c.m .Use latest OPWD rates
   e. Differentiate between Plinth area estimate and cube rate estimate.
   f. Calculate the quantity of woodwork in frames of 2 doors and 3 windows having following specifications
      Size of door = 1.2m ×2m , size of window = 1×1.5m
      Size of chowkath = 10 c.m×8 c.m.
   g. What do you mean by analysis of rate? Write the purpose of analysis of rates.

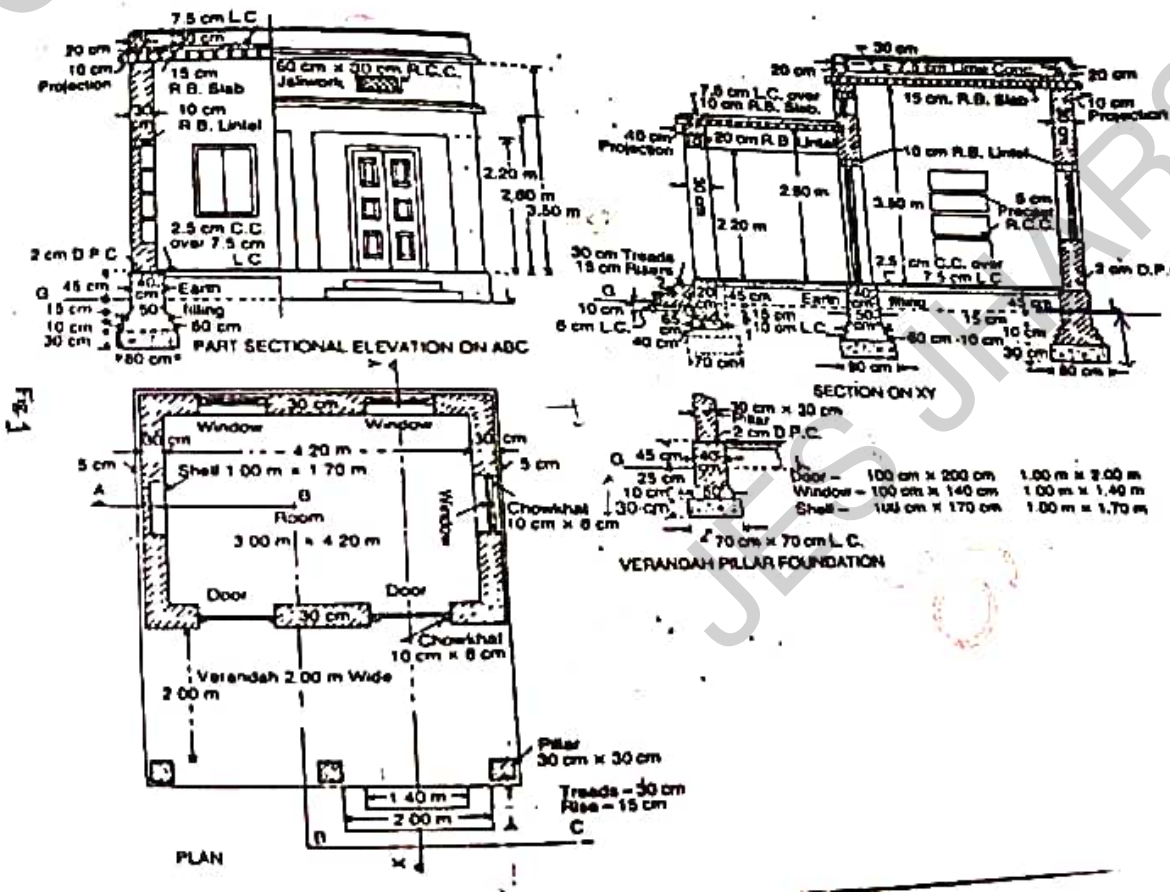
3. Prepare the quantity estimate for the following items from the given drawing in Fig-1. 5
   (a)Earthwork in excavation in foundation 5
   (b)1st class brickwork in foundation and plinth(1:3) .

4. Prepare the quantity estimate for the following items from the given drawing in Fig-1. 7
   (a)First class brickwork in superstructure (1:3) 3
   (b) 2.5 c.m dpc work (1:2:4) 5

5. (a) Calculate the dry materials required for the quantity of items calculated for Q 4(b) . 5
   (b) Analyse the rate of materials and labours as per OPWD for Q .4 (a). 5

6. Write the role of following persons. 5
   (a)Divisional accountant 5
   (b) Executive engineer 10

7. Describe briefly about different types of estimates.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Shell 1.00 m x 1.70 m
Room
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PLAN
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