



## **DIPLOMA IN CIVIL ENGINEERING**

### **CENTRALIZED QUESTION BANK**

**4010651 - Estimation And Costing Laboratory**

**DIRECTORATE OF TECHNICAL  
EDUCATION GOVERNMENT OF  
TAMILNADU**

**Max Marks: 100**

**PLAN**

HALL 5.00 X 6.00

KITCHEN 5.00 X 3.00

Dimensions: 0.23, 8.00, 0.23, 3.00, 0.23, 5.46, 5.00, 0.23

**SECTION ON 'A-A'**

Dimensions: 11.69, 3.20, 0.76, 0.12, 0.91, 0.75, 0.75, 0.15, 0.60, 0.75, 1.00, 0.60, 0.75, 0.60

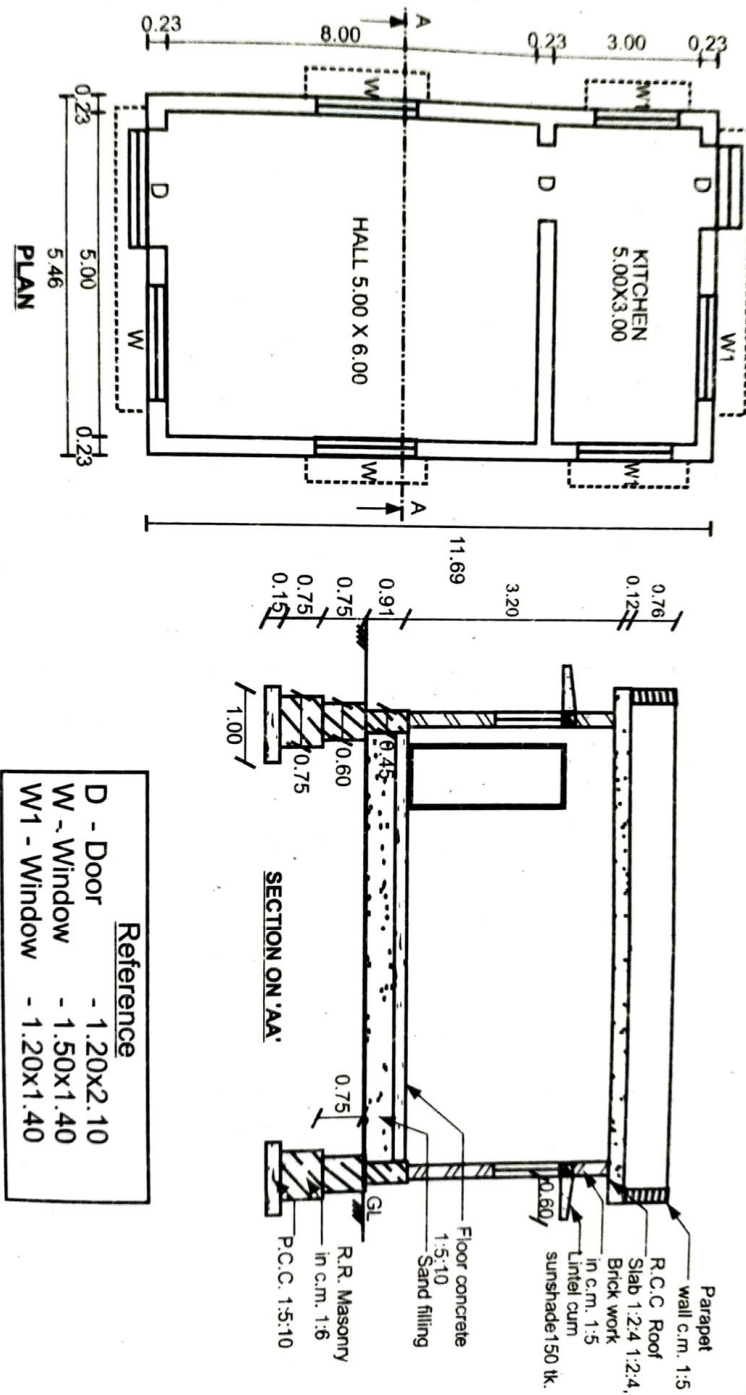
Materials and Details:

- Parapet wall c.m. 1:5
- R.C.C. Roof
- Slab 12.4 x 12.4
- Brick work
- m.c.m. 1:5
- Uttel damp
- sunshade 150 k.
- Floor concrete 1:5:10
- Sand filling
- R.R. Masonry in c.m. 1:5
- P.C.C. 1:5:10

**Reference**

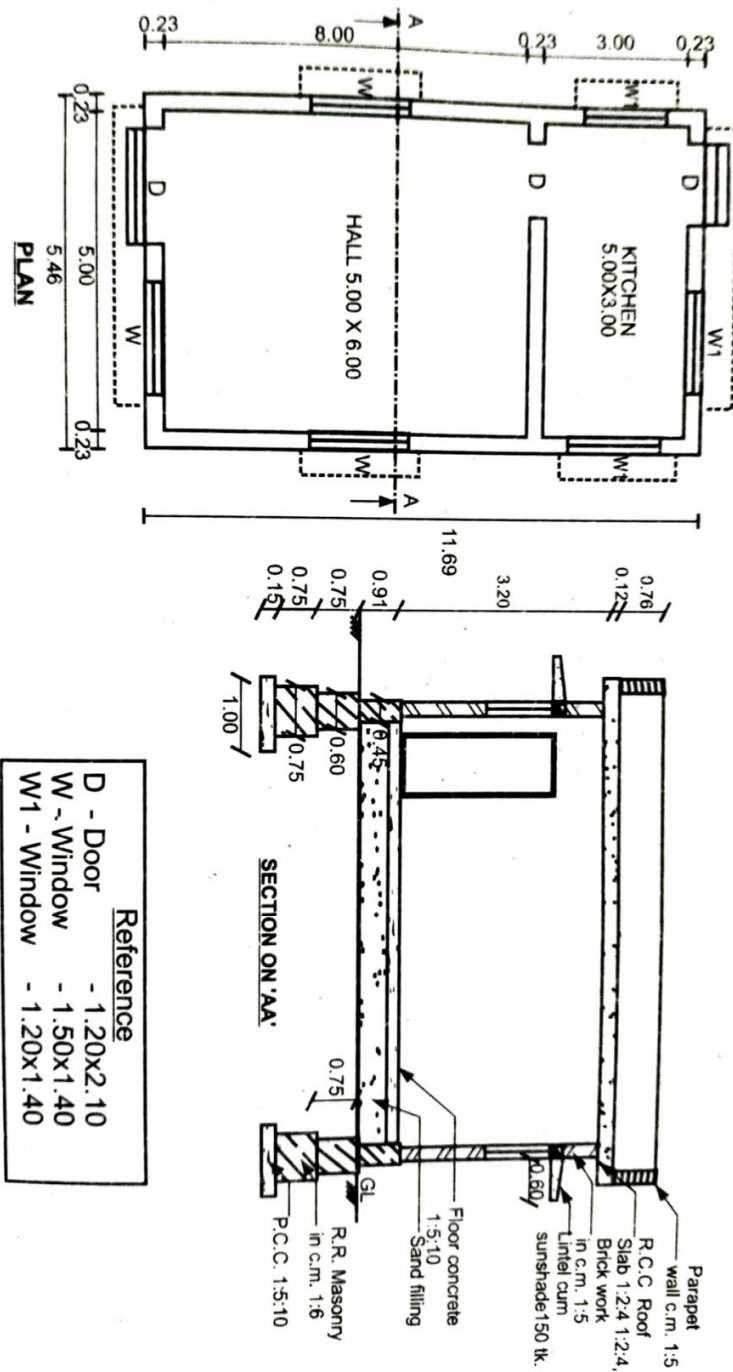
- D - Door - 1.20x2.10
- W - Window - 1.50x1.40
- W1 - Window - 1.20x1.40

2. Prepare a report on market rates for the materials, labor wages, hire charges of tools & equipment required to construct the given structure



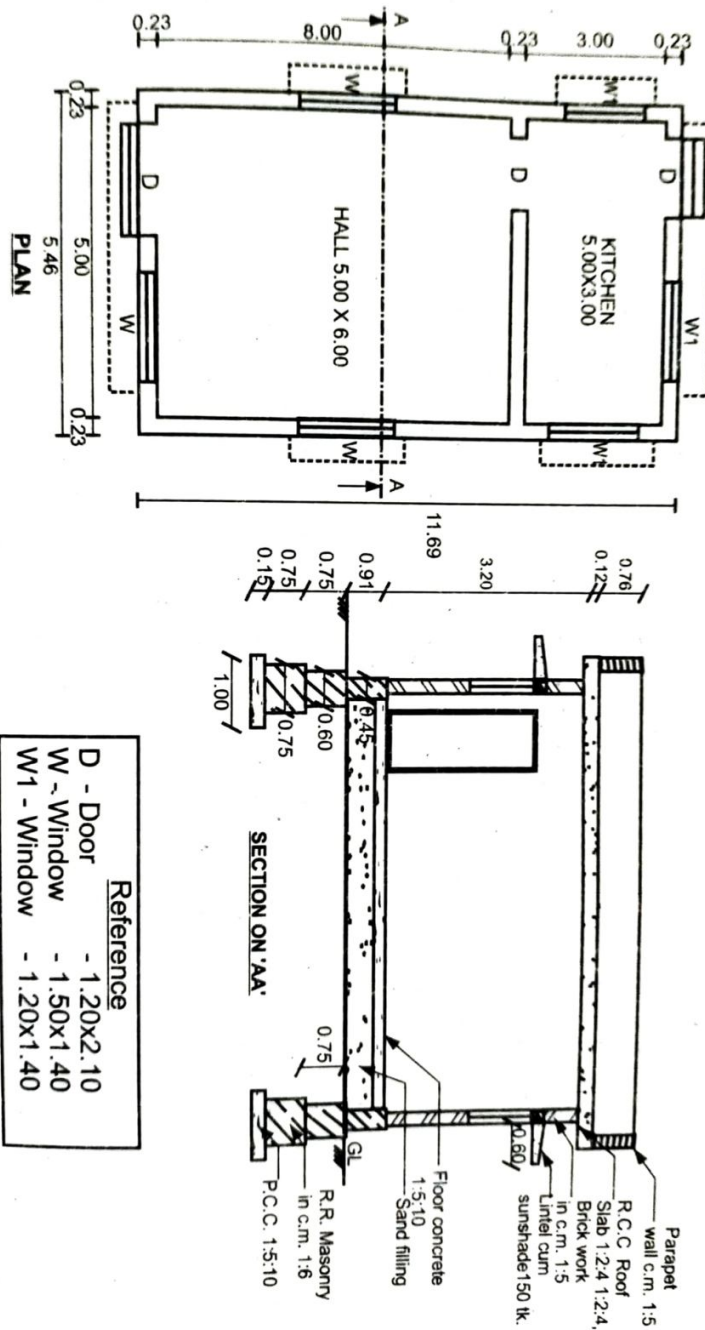
(95 Marks)

3. Prepare a Measurement Book (M-Book) with the specified tabular column for any four items on construction work. All Dimensions are in m.



(95 Marks)

4. Prepare bill of quantities of given item from actual measurements. (Any four items)
- All dimensions are in m.



(95 Marks)

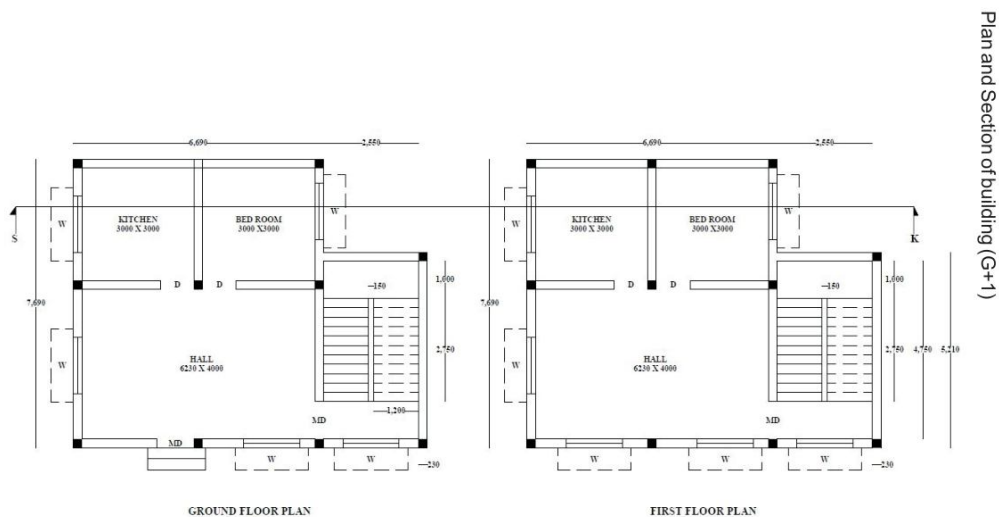
5. (i) The actual expenditure incurred in the construction of a single storey residential building of plinth area  $100\text{m}^2$  is found to be `Rs.38,55,000 in which 50% is towards the cost of materials and the remaining is towards the cost of labour. It is now proposed to construct a similar building of same height and specification with the plinth area of  $74\text{m}^2$  at the place where the cost of materials is 13% more and the cost of labour is 19% less Estimate approximately the cost of the proposed building.

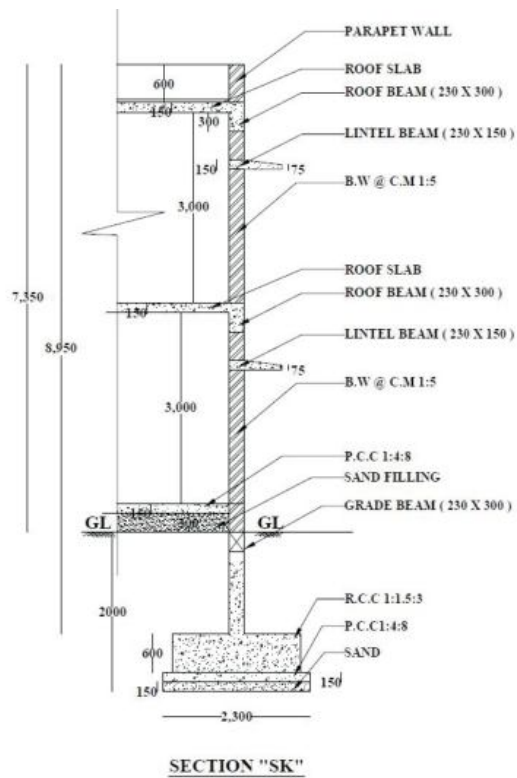
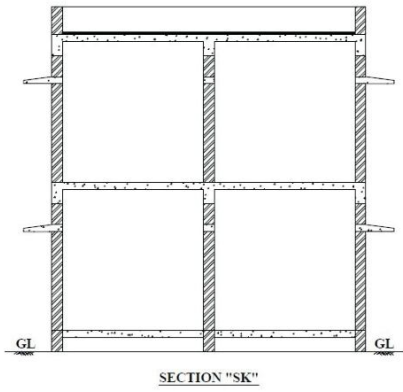
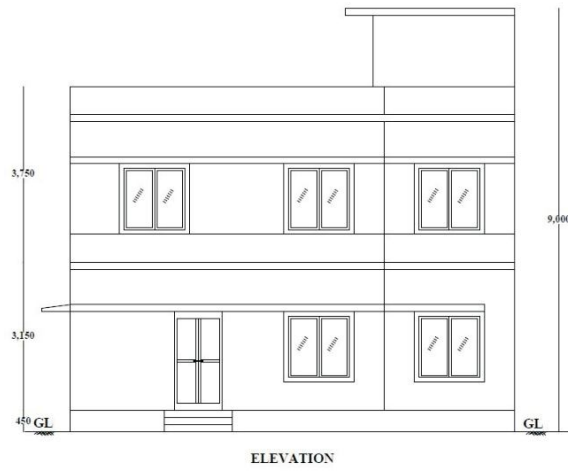
(50 Marks)

- (ii) The total expenditure incurred in the construction of a building for a shopping complex of plinth area  $300\text{m}^2$  and height 4m is Rs.10 lakhs. A similar building of plinth area  $200\text{m}^2$  and height 3.6m is proposed to build in the same locality, the increase in the cost of materials and labours is found to be 20%. Determine the probable expenditure.

(45 Marks)

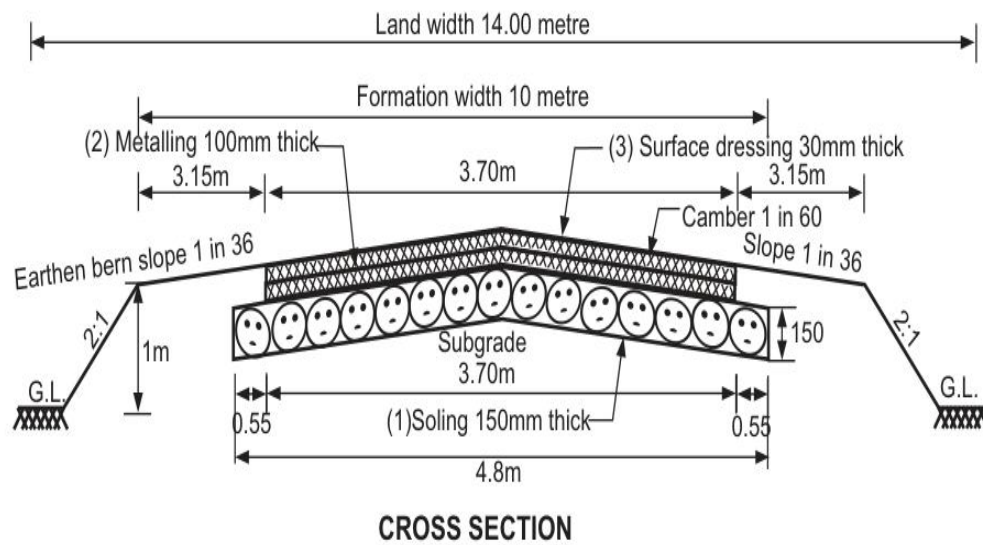
6. Prepare detailed estimate for brickwork, beam, roof slab and plastering work for walls with deduction from the given set of drawings using “standard measurement and abstract format” for RCC framed structure using description of item (G+1 Building)





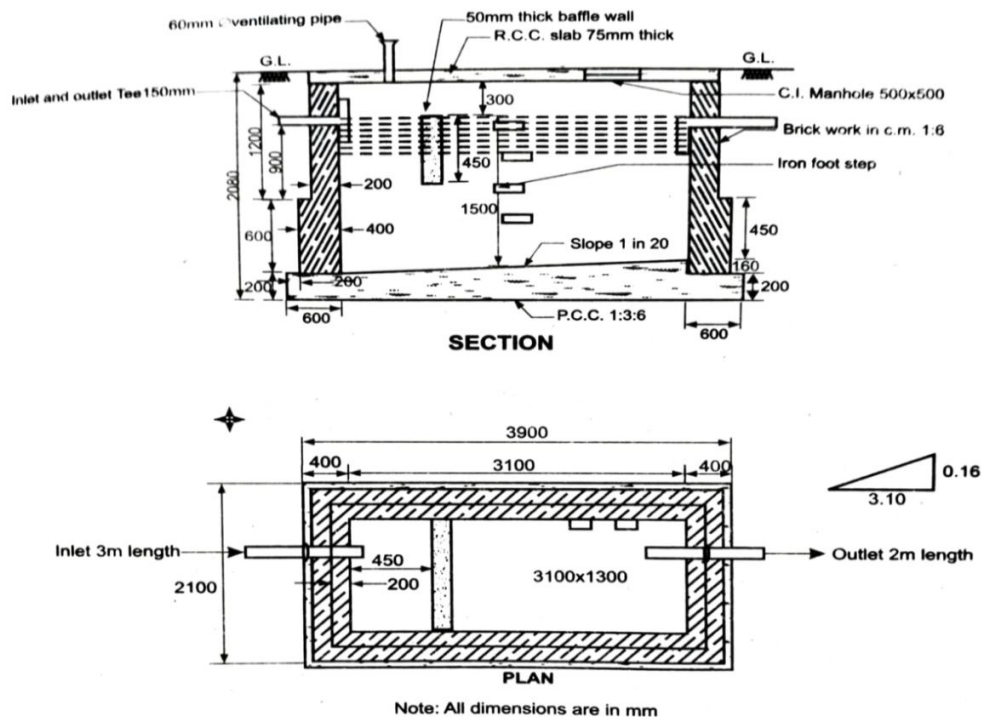
(95 Marks)

7. Prepare detailed estimate of bitumen road of one kilometer length from the given drawing.



(95 Marks)

8. Prepare detailed estimate of small Septic tank from the given drawing.



(95 Marks)



9. Prepare bar bending schedule for the given singly reinforced beam  
The following are the details pertained to a singly reinforced simply supported beam.  
Size of the beam = 300x 400mm  
Clear span = 3.0m  
Thickness of walls = 300mm  
Clear cover (for all) = 25mm  
Reinforcement Details  
Tension reinforcement 5 nos of 16mm # Fe415 Steel.  
Hanger bars 2 nos 10mm # Fe415 Steel.  
Stirrups - 6mm Fe250 @ 200mm c/c. 50% bars cranked  $45^\circ$  at 0.08 L from the face of supports, 50% of bars shall be taken straight.

(95 Marks)

10. Prepare bar bending schedule for the given doubly reinforced beam.  
The following are the details of a doubly reinforced beam.  
1. Clear span = 4500 mm  
2. Width of support = 300 mm  
3. Size of beam = 300 x 450 mm  
Reinforcement details  
MID SPAN  
Bottom Tensile reinforcement = 4 Nos 16mmdia Fe415 steel  
Top Compressive reinforcement = 2 Nos 16mmdia Fe415 steel  
AT SUPPORT  
Bottom Tension = 3 Nos # 16mm, Fe415  
Top Compression = 2 Nos # 16mm, Fe415  
Shear reinforcement = 8mmdia Fe415 bars 2 legged stirrups at 160mm c/c up to a distance of 800mm from the edge of the support on both sides. Beyond this point use these shear stirrups @ 300 mm c/c. Anchorage and curtailment of reinforcement may be adopted with standard values.  
Assume any other data required suitably.

(95 Marks)

11. Prepare bar bending schedule for the given one-way slab  
The following are the details pertained to a simply supported one way slab:  
Clear span: 3500mm.  
Width span: 230mm.  
Thickness of slab: 150mm.  
Clear cover: 15mm.  
Reinforcement details:  
Main Reinforcement = 12 mm dia. Fe 415 steel @ 110mm C/ C  
Distribution bars = 10 mm Fe 415 steel @ 250 mm C/ C  
Distributors in both directions = 10 mm Fe 415 @ 250 mm  
Adopt standard anchorage and curtailment whatever necessary.

(95 Marks)

- 12.** Prepare bar bending schedule for the given two-way slab  
The following are the particulars of a simply supported two-way slab in which corners are not held down.  
Size of the room = 4.00 x 6.00 m  
Width of support = 300 mm  
Thickness of slab = 150 mm  
Clear cover = 20 mm  
Edge cover = 25 mm  
Reinforcement details:  
Reinforcement along shorter span = 12 mm Fe 415 @ 230mm C/ C  
Reinforcement along longer span = 12 mm Fe 415 @ 200 mm C/ C  
Distributors in both directions = 10 mm Fe 415 @ 280 mm  
Anchorage and curtailment of reinforcement may be adopted with standard values and any more data required may be assumed suitably.

(95 Marks)

- 13.** Prepare bar bending schedule for the given square column and square footing  
**Details of column**  
Size of the column: 300mm x 300mm.  
Longitudinal bars: 4 bars of 25mm dia. Fe415 with 40mm Nominal cover.  
Lateral ties: 8mm dia. Fe415 at 200mm c/c  
**Details of the footing**  
Size of the footing: 3m x 3m  
Thickness of footing at edge: 450mm  
Thickness of footing at the junction on column: 950mm  
Reinforcement: 16mm dia. Fe415 - 9 Nos. in each direction.  
Adopt standard anchorage.  
Draw the following views to a suitable scale:  
(i) Plan showing the details of reinforcement for column with footing.  
(ii) Section of column with footing.  
(iii) Cross - section of column.  
(iv) Prepare a bar bending schedule, for 1m above the top of footing.

(95 Marks)