

## BACHELOR OF ARCHITECTURE THIRD YEAR SECOND SEMESTER -2022

## QUANTITY SURVEYING &amp; SPECIFICATIONS

Time : 3:00 Hrs.

Full Marks: 100

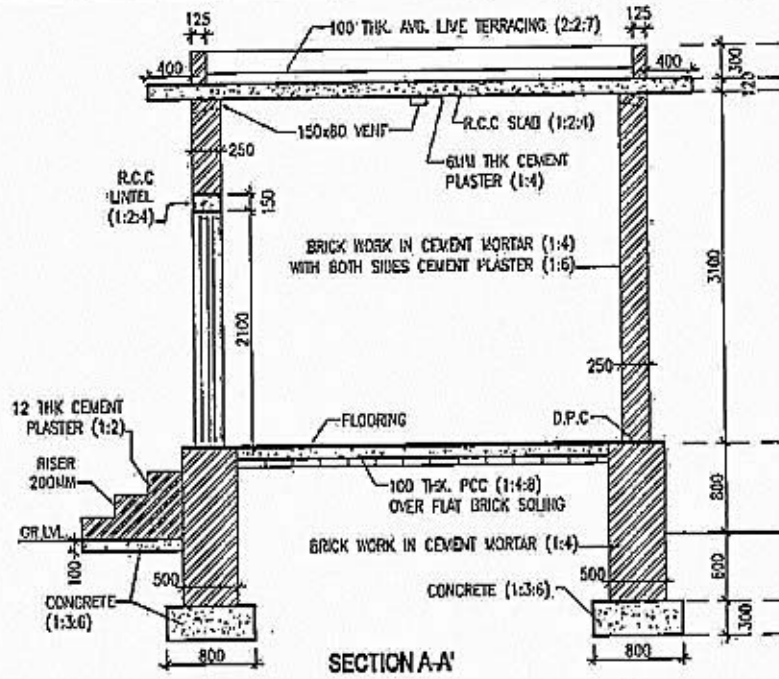
Answer any Four

1. Plan, Section & brief specifications of a building has been shown in the Fig.- 01 (attached separately).  
Find the quantities of the items of work showing the details of measurements following the standard measurement rules as written below - (a) Earthwork in excavation, (b) Earthwork in filling, (c) Cement concrete (1:3:6), (d) Brickwork in cement mortar (1:4) in foundation & Plinth, (e) 2.5 cm thick D.P.C (1:2:4), (f) Brickwork in superstructure. (21)  
Write down other items of work & their unit which are required to prepare a Detailed Estimate for this building. (4) 21 + 4 = 25
2. Drawings & brief specifications of boundary wall provided in the Fig- 02 (attached separately)  
Find the quantity of - (i) Earthwork in excavation for foundation, (ii) Earthwork in filling, (iii) 2<sup>nd</sup> class brick flat soling, (iv) Cement concrete (1:4:8) in foundation with overburnt brick chips, (v) 1<sup>st</sup> class brickwork in cement mortar (1:6) in foundation, (vi) 1<sup>st</sup> class brickwork in cement mortar (1:6) in superstructure of brick columns, (vii) 100mm thick 1<sup>st</sup> class brickwork in cement mortar (1:6), (viii) Cement plastering (1:6), (ix) Cement concrete (1:2:4) coping with stone chips. 25
3. What do you mean by specification? (2)  
Why is it necessary? (4)  
What is the format of writing specifications? (6)  
Explain the two types of specifications that are used normally. (4)  
Specify 3 items that are considered during building construction. (9) 2 + 4 + 6 + 4 + 9 = 25
4. Describe in detail 5 different types of estimates that are commonly used. (10)  
What is the purpose of estimating? (3)  
Draw a flowchart explaining a complete estimate. (3)  
Explain the various ways in which tenders are invited. (9) 10 + 3 + 3 + 9 = 25

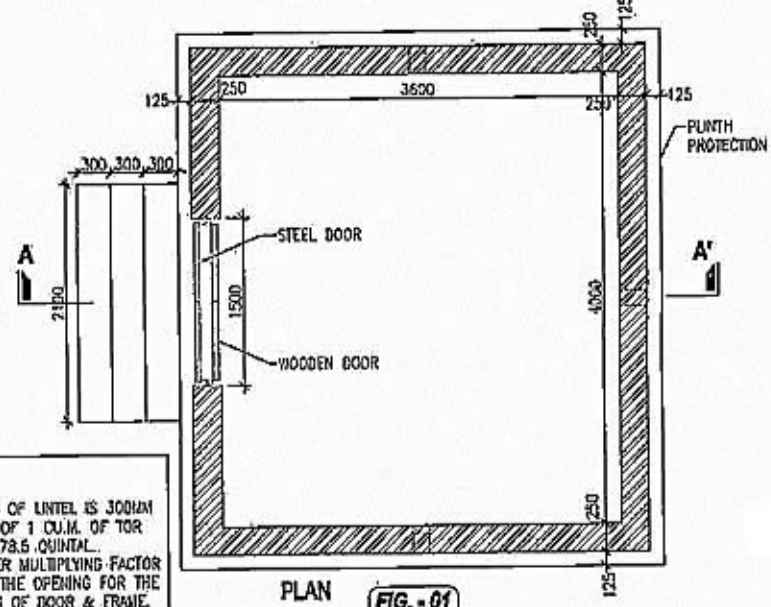
5. (a) What is the purpose of the Rate analysis? (3)
- (b) Calculate the required materials for 10 cu.m. volume of cement concrete (1:1½:3) and find dry quantity of Cement in Bags, Sand in Cum & Stone chips in Cum. (6)
- (c) What are the sub-heads to be estimated to calculate the rate per unit an item? (3)
- (d) What is Water Charge? (2)
- (e) Carpet area of a 4-stroied (framed structure) office building is 300 sqm. per floor. Assume areas occupied by corridor, verandah,, lavatories, staircase etc., as 25% of Built-Up area and that occupied by walls and columns as 8.5% of the BU area. Calculate the total Built-Up area of the office building? (4)
- (f) Also prepare a preliminary estimate of the same building. Given - (i) Built-up area rate for ground floor (excluding foundation) = Rs 15,000/- per sq m. (ii) Build-up area rate for 1st. & 2nd, floor = Rs. 16,500/- per sq m. (iii) Build-up area rate for 3rd. floor = 18,000/- per sq m. (iv) Extra for foundation = 20% of super-structure cost. (v) Extra for special Architectural treatment = 1% of Bldg. Cost. (vi) Extra for Water supply and sanitary = 7% of Bldg. cost. (vii) Extra for Electrical installation = 8% of Bldg. cost. (viii) Extra for Contingencies = 4% of overall cost. (ix) Extra for Work Charged establishment = 10% of overall cost. (x) Extra for other source = 5% of building cost. (7)  $3+6+3+2+4+7=25$

**General specifications :**

Brickwork shall be 1st. class with cement mortar (1:4). Foundation concrete shall be cement with brick chips (1: 3: 6). Wood work for frames shall be of salwood and shutters of Indian teak. Frame for wooden door shall be of saj wood 10cm x 8cm and shutter of 1st. class Indian teak 25mm thick. Steel door shall be with integrated grills with 1.25 mm thick M. S. sheet. All walls shall be three coats white washed. Doors shall be painted with two coats. R. C. works are 1% reinforced TOR steel. 2 nos. 75 mm. dia rain water spouts shall be provided. Other specifications shall be followed as mentioned in the drawing.



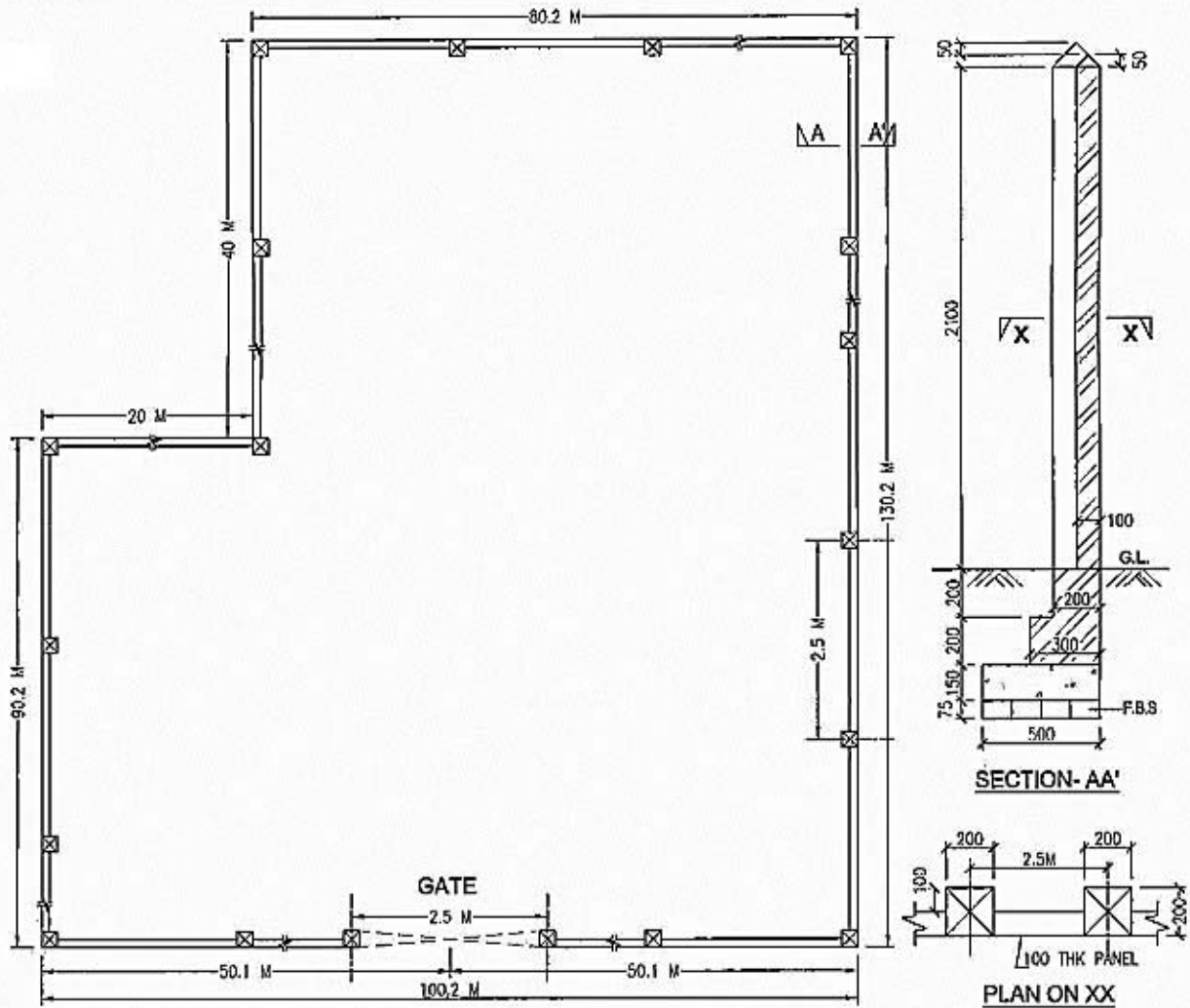
SECTION A-A'



- NOTE :-**
1. BEARING OF LINTEL IS 300MM
  2. WEIGHT OF 1 CU.M. OF TOR BAR IS 78.5 QUINTAL.
  3. CONSIDER MULTIPLYING FACTOR 1.3 OF THE OPENING FOR THE PAINTING OF DOOR & FRAME.

**GENERAL SPECIFICATIONS - FOUNDATION - SOILING 2ND CLASS BRICK, CEMENT CONCRETE WITH OVERBURNT BRICK CHIPS 1:4:8 . MASONRY - 1ST CLASS BRICKWORK IN CEMENT MORTAR 1:6. SUPERSTRUCTURE WALL - 1ST CLASS BRICKWORK IN CEMENT MORTAR 1:6. COPING ON THE WALL - CEMENT CONCRETE WITH STONE CHIPS 1:2:4. WALL FINISHING INSIDE AND OUTSIDE - CEMENT PLASTERING 1:4.**

**NOTE - ALL DIMENSIONS ARE IN MILLIMETER OTHERWISE MENTIONED. FOUNDATION OFFSET IS NOT REQUIRED AT THE GATE.**



**FIG. - 02**