

Subject: ESTIMATING AND PRICING

Time: Three hours

Full Marks: 100

Different parts of the same question should be answered together.

Answer all questions in this block:

(a) Work out the quantities of reinforcement for the following and tabulate in a bar bending schedule format.

Member	Overall size	Details of Reinforcement
Beam	2000mm long (230X230)mm section	a) Main bars 12mm Φ 4Nos. 2 straight and 2 Bentup(45°) b) Anchor bars 10mm Φ 2 Nos. c) Stirrups-6mm Φ at 150mm c/c

OR

(b) An RCC roof slab of overall size 6000 mm x 4000 mm & thickness 150 mm is provided with 10 mm diameter main bars bent up (45°) alternatively and placed at 150mm c/c. The distribution steel of 6mm diameter is provided @ 200mm c/c. Concrete cover is 15 mm on all sides. Find out the total quantity of plain steel. Prepare a bar bending schedule. [15]

CO1
[50] 2. (a) Reduced level (R.L.) of ground along the centre line of a proposed road from chainage 10 to chainage 20 are given below. The formation level at the 10th chainage is 107 m. and the road is in downward gradient of 1 in 200 up to the chainage 14 and then the gradient changes to 1 in 110 downward. Formation width of the road is 12 metre and side slopes of banking are 2:1. Length of the chain is 30 metre. Calculate the quantity of earthwork. Chainage : 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20
R.L. of ground : 105.00, 105.60, 105.80, 105.90, 105.90, 104.30, 105.00, 104.20, 104.70, 104.00, 103.50

OR

(b) Prepare a detailed estimate for the construction of one kilometer length over a formation of an embankment. The formation width is 12.0 m. and side slope 2:1. The metal led width is 4.0 m. and three coats of metal ling are to be provided. Soling coat of 20 cm. boulders, inter coat and top coats of 15 cm loose compacted to 10 cm thick. Wearing coat of gravel 5 cm thick. [15]

[3] For a building drawing shown in FIGURE-1 calculate

- 1) Brickwork in CM (1:6) in foundation footing.
- 2) 12mm thick plastering the wall surfaces with CM (1:6) for all superstructure walls by central line method.
- 3) Earth work excavation for the foundation.

OR

Work out the quantity for the following items of work for building shown in FIGURE-2

1. R.R. Masonry in CM 1:6 for footings and basement
2. Brickwork in CM 1:4 for super structure.
3. Plastering for ceiling with CM 1:3 [20]

	<p>b. For an R.C.C. Stair case shown in FIGURE-3 Calculate the following contents.</p> <ol style="list-style-type: none"> 1) R.C.C. (1:2:4) for base beam, waist slab, Top and intermediate landings. 2) Brick work in CM (1:4) for steps. 3) Calculate the quantities of cement, sand and coarse aggregates for 50 m³ cement concrete for the proportion (1:1.5:3). [20]
CO2 [10]	<p>Answer all questions in this block:</p> <p>[4] (Answer any three)</p> <ol style="list-style-type: none"> a. 1. Find the unit rate for brick work in cement mortar (1:6) using standard size of bricks. 2. Find the unit rate of plastering 12 mm. and 20 mm. thick with a proportion of (1:5) cement mortar. 3. Prepare a unit rate of brickwork in cement mortar for 1.0 cu m. using modular bricks. 4. Prepare a unit rate of R.C.C. (1:2:4) for 1.0 cu m. in slabs, beams and columns. b. Differentiate between “Analysis of rates “ and “ Schedule of rates” [3+3+3+1]
CO3 [15]	<p>Answer all questions in this block:</p> <p>[5] (a) Briefly explain necessities of specification and also explain various types of specification.</p> <p>(b) What are the specifications of a first class buildings?</p> <p>(c) Write specification on (ANY TWO) (1) RCC slab (1:2:4) (2) Damp proof course.(1:1.5:3) (3)Painting. [3.5+3.5+4+4]</p>
CO4 [25]	<p>Answer question no. (a) & (b) & any two from the rest in this block:</p> <p>[6] (a) Distinguish between Depreciation & Obsolescence. [5]</p> <p>(b) Write a short note on (1) Salvage value (2) Scrap value [3 X 2]</p> <p>(c) Define sinking fund & explain any method to determine sinking fund. [7]</p> <p>(d) The capitalized cost of a building is Rs. 10 Lakh considering first class construction. If the rate of interest is 7% calculate net return from the property. [7]</p> <p>(e) Explain in detail the four methods of calculating depreciation. [7]</p>

The students of the course should be able to

CO1: To estimate quantity of materials of different civil engineering structures. (K3)

CO2: To analyse the rate analysis, bill preparations, overhead and profit.(K4)

CO3: To prepare the specification. (K3)

CO4: To understand the valuation of rental, land and buildings. (K2)

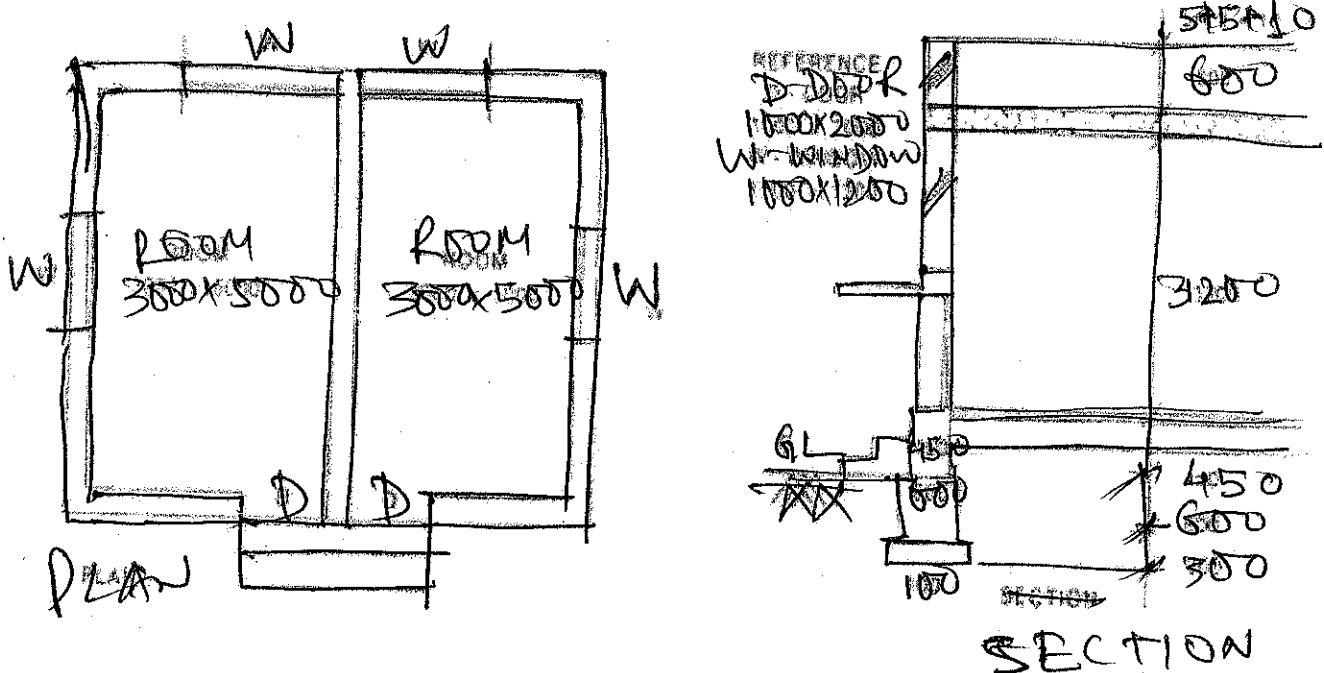
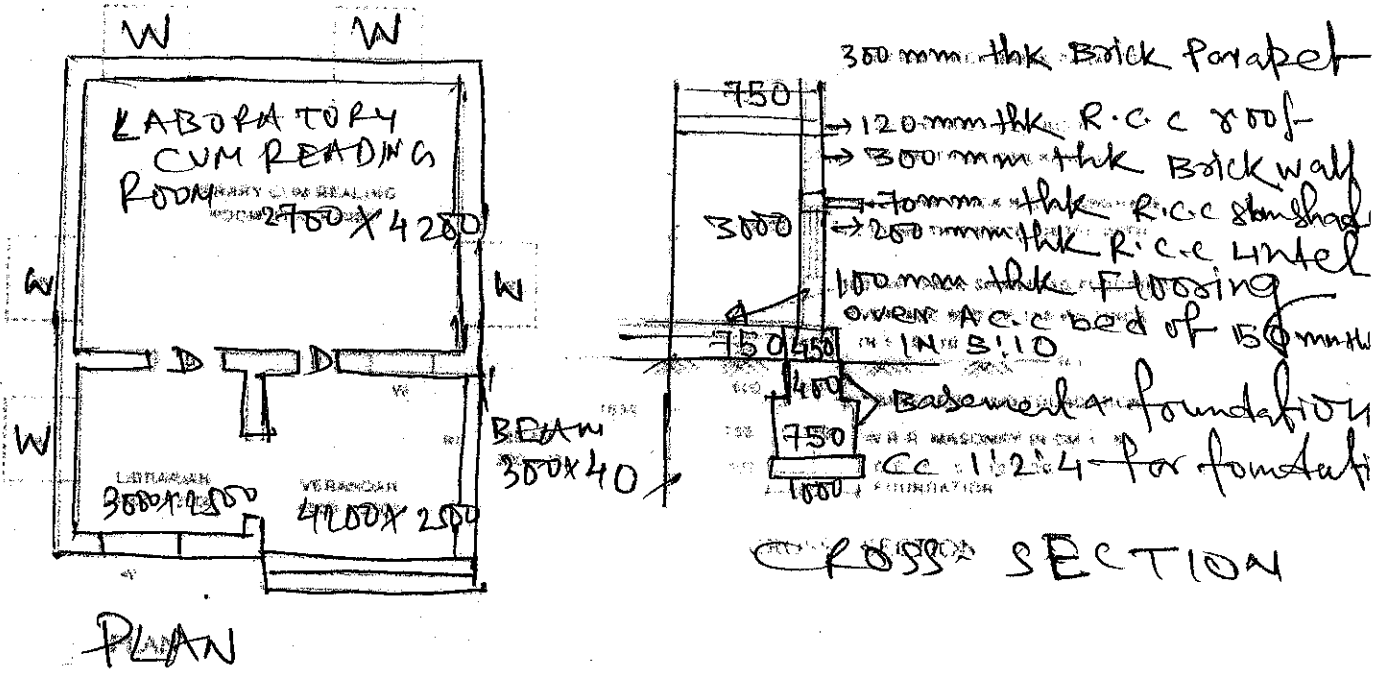


FIGURE-1



ALL DIMENSIONS ARE IN "MM"

FIGURE-2

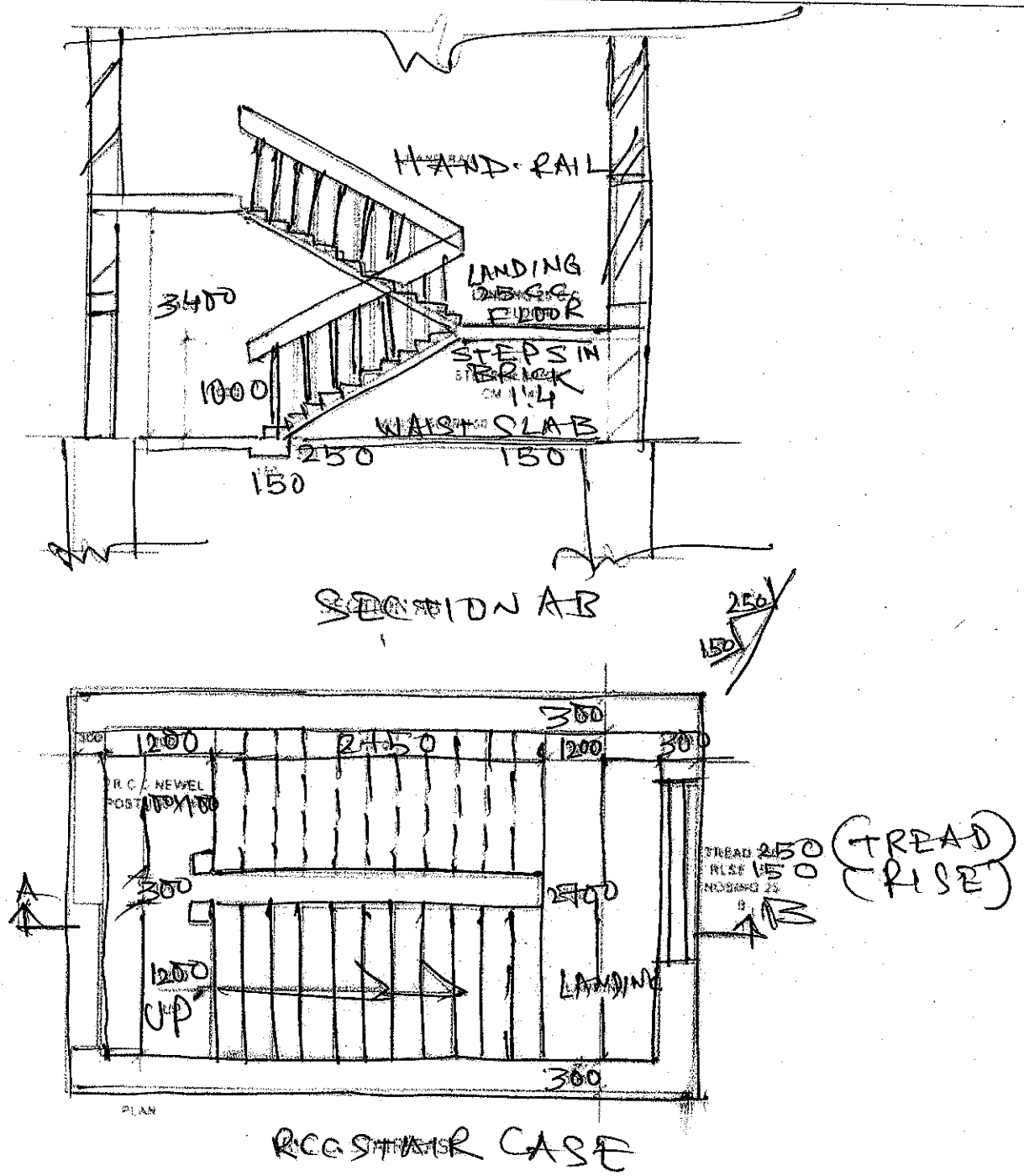


FIGURE-3