

**Estimating and Costing**

P. Pages : 4

Time : Four Hours



TKN/KS/16/7520

Max. Marks : 80

- Notes :
1. All questions carry marks as indicated.
  2. Due credit will be given to neatness and adequate dimensions.
  3. Assume suitable data whenever necessary.
  4. Diagrams should be given whenever necessary.
  5. Illustrate your answers whenever necessary with the help of neat sketches.
  6. Use of non programmable calculator is permitted.

1. a) Explain with suitable examples. The various methods of Calculating Approximate Estimates. 6
- b) The following table is an extract from the longitudinal section of a road earthwork survey. Calculate the quantity of earthwork from the following data. 7
- i) Formation width : 12 m
  - ii) Side Slopes : a) Banking – 2 : 1    b) Cutting – 1.5 : 1

Chainage	0	30	60	90	120	150	180
RLof Ground	99.70	99.80	100.30	100.50	100.80	100.90	100.60
RLof Formation	100.50 —————		in 300(+) —————		————— in 150(-)		—————

**OR**

2. a) Prepare a preliminary estimate of a double storeyed building having carpet area of 1800m<sup>2</sup>. It may be assumed that 30% of the built up area will be considered for corridors and verandahs and 10% of the area to be occupied by walls 6
- Given :
- 1) Plinth Area Rate :                      Rs. 1500 per m<sup>2</sup>
  - 2) Water Supply and Sanitary works :                      5% of building cost
  - 3) Electrical Installation :                      12.5% of building cost.
  - 4) Contingencies :                      10%
- b) The ground levels at various chainages along centre line of a proposed road are 7

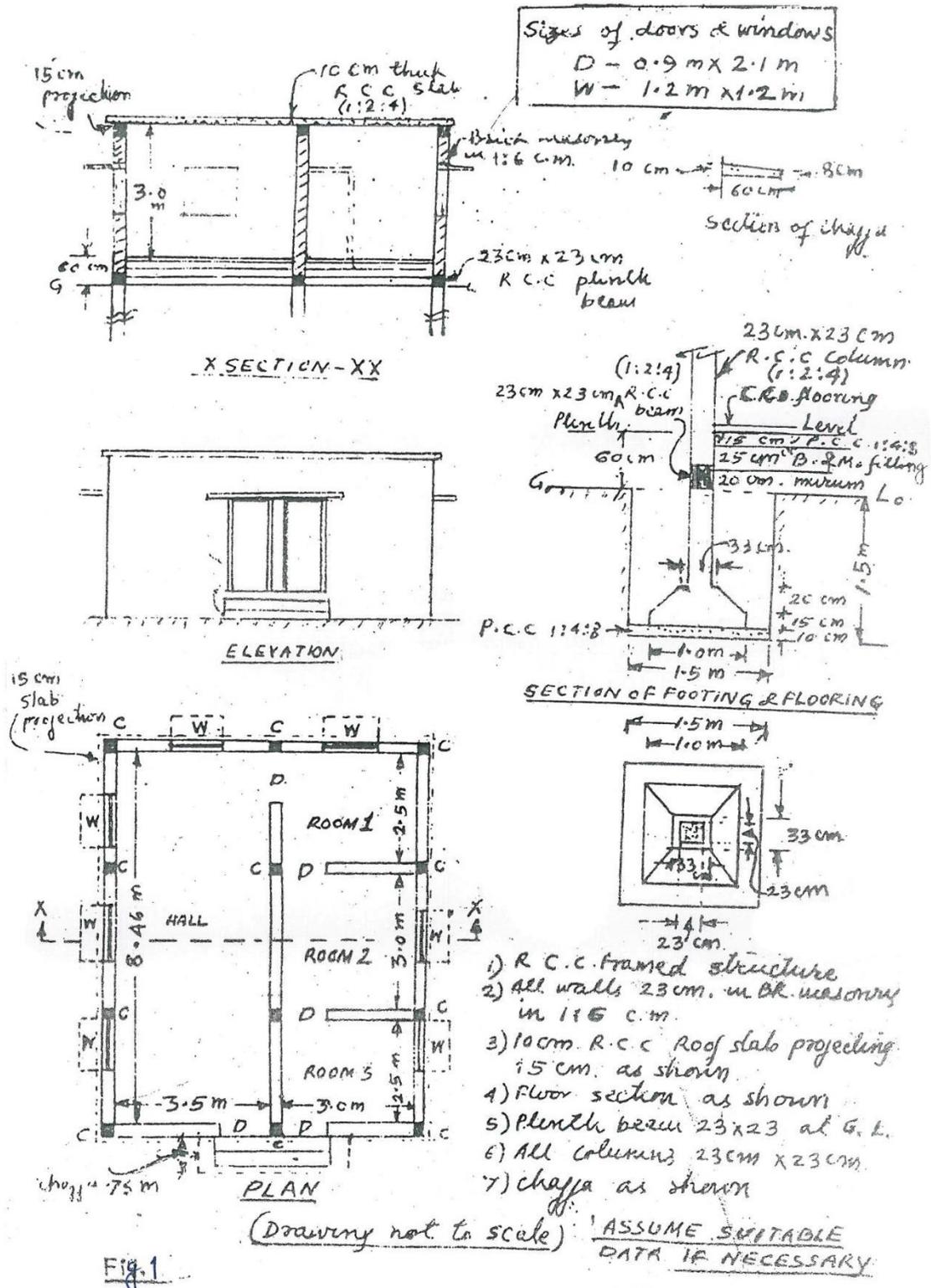
Chainage	21	22	23	24	25
Distance, m	0	30	60	90	120
RL of Ground	180.50	183.36	185.52	187.10	186.50

The ground has uniform cross slope of 1 in 8. The length of chain is 30m. The road formation is proposed at uniform gradient passing through G.L. at the end chainages with formation width as 8 m and side slope in cutting is 1 : 1. Estimate the quantity of earthwork for the proposed road section in a tabular form.

3. a) Fig. 1 (Enclosed) shows a building plan and a section of footing of RCC frame structure building Estimate the quantities of following items of work (any two) 8
- i) Earthwork in excavation in footing.
  - ii) RCC work in column and column footing upto ground level.
  - iii) Brickwork in superstructure.

- b) A RCC slab overall size 3300 mm x 6800 mm x 130 mm is provided with 16mm  $\phi$  as main steel reinforcement bent up alternately and placed @ 140 mm c/c. Alternate bars are bent up at 540 mm from the outer edge of the slab. Distribution steel bars are of 6mm  $\phi$  @ 180 c/c. Assume cover as 20 mm throughout. Calculate the quantities of steel reinforcement in bar bending schedule. (All steel bars are of mild steel)

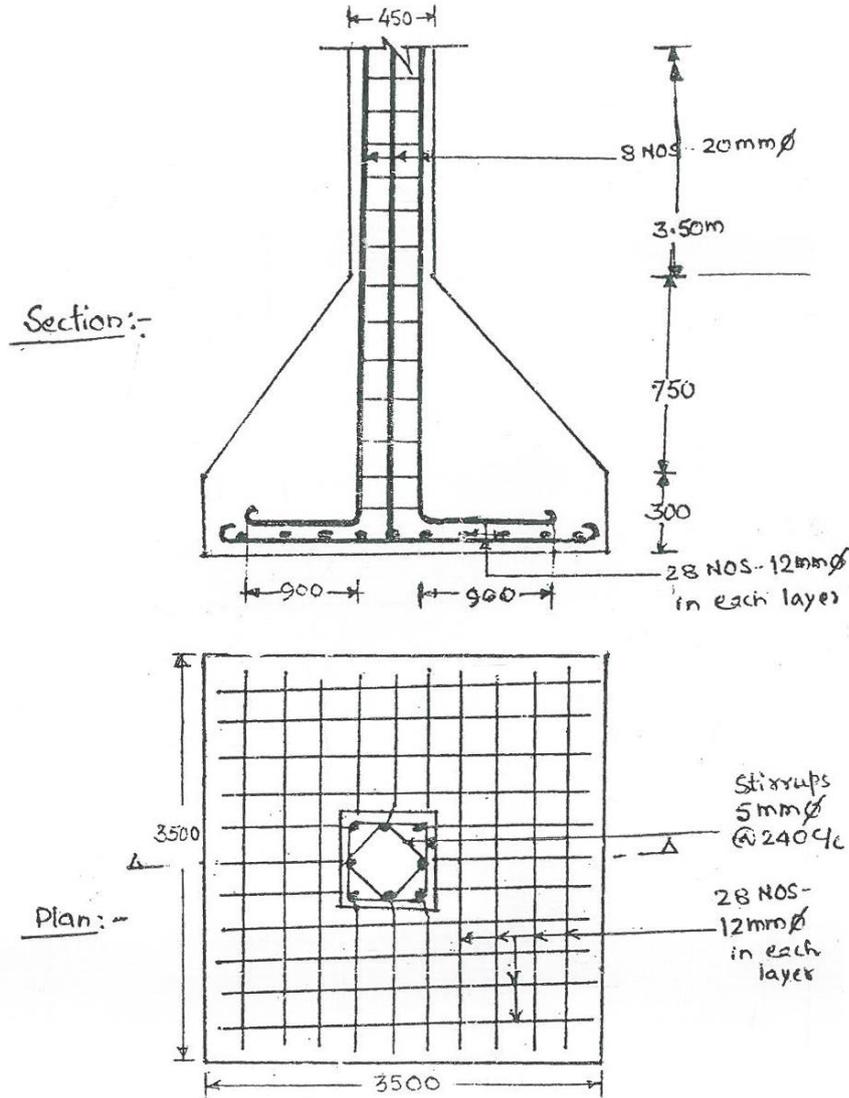
6



OR

4. a) Estimate the quantities of following items of work (Any Two) from the given drawing in fig. 1. 8
- i) Filling in Plinth.
  - ii) RCC work in slab.
  - iii) Internal plaster to walls and ceiling.

- b) Fig. 2 (Enclosed) shows the details of reinforcement of column and column footing. Assume cover as 25mm throughout in column and column footing both. Prepare an estimate with bar bending schedule and calculate the quantity of steel reinforcement. 6



5. a) Explain the methods of carrying out Civil Engg. works in Govt. Departments. 6
- b) Enlist the various types of contract and explain any two of them. 7

**OR**

6. a) Enlist an information to be included while drafting Tender Notice. 6
- b) Differentiate clearly between Earnest Money Deposits and Security Deposits. 7

7. a) What is specification? Explain the various types of specification. **7**
- b) Write a short note on 'Direct and Indirect charges'. **6**
- OR**
8. a) Write a detailed specification of the following (**any two**) **8**
- i) Earthwork in Excavation in foundation trench.
- ii) Laying P.C.C. in foundation trench (Mix 1 : 4 : 8)
- iii) Second Class Brick Masonry in Superstructure.
- b) Write a short note on 'MAS Accounts'. **5**
9. a) Define Rate Analysis. Explain the major and minor factors affecting rate analysis. **6**
- b) Calculate the rate per unit item of following items (**any two**) **8**
- i) PCC (1 : 4 : 8)
- ii) Brick Masonry in Superstructure in C.M. 1 : 6 (Brick Size 19 cm x 9 cm x 9 cm)
- iii) 20 mm thick Cement plaster in C. M. 1 : 4.
- OR**
10. a) What do you understand by Task work of a labourer? Explain the factors affecting taskwork. **6**
- b) Calculate the rate per unit item of the following (**any two**) **8**
- i) RCC work (1 : 2 : 4) in slab (Assume 1% steel Reinforcement)
- ii) Brick Masonry in superstructure in C.M. 1 : 4 (Brick size 23 cm x 11 cm x 7 cm)
- iii) 10 cm thick cement concrete flooring (1 : 3 : 6)
11. a) What is valuation? Explain in brief the various purposes of valuation. **7**
- b) A person has purchased an old building at the cost of Rs. 90 Lakhs on the basis that the cost of land is Rs. 50 Lakhs and the cost of building structure is Rs. 40 Lakhs. Considering the future life of a building as 20 years. Calculate the amount of sinking fund at 4% interest, when scrap value is 10% of the building structure. **6**
- OR**
12. a) Enlist the various types of valve. Explain any two. **7**
- b) A leasehold property is to produce a net annual income of Rs. 12,000 for the next 20 years. The owner expects a return of 8% on his capital and also sets apart a sinking fund to accumulate at 6% annually to replace the capital. Determine the capitalized value of the property. **6**

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