B.E.(Civil Engineering) Semester Seventh (C.B.S.)

# Estimating and Costing

P. Pages : 3 **KNT/KW/16/7433**

Time : Four Hours * 0 8 0 6 * Max. Marks : 80

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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. Illustrate your answers whenever necessary with the help of neat sketches.
5. Use of non programmable calculator is permitted.

**1.** a) Discuss the various methods for approximate estimate of a residential building. **6**

b) The following is an extract from the longitudinal section of a road alignment. The top width of earthwork is 7 meters. The side slopes in banking is 2 : 1 & cutting is 1 : 1. Calculate the earthwork in Road. **7**

| Chainage | Ground level | Formation level |
|---|---|---|
| 120 | 100.30 | 100.80 |
| 150 | 100.90 | ↑ |
| 180 | 101.40 | (+) (1 : 120) |
| 210 | 101.80 | ↓ |
| 240 | 101.50 | ↑ |
| 270 | 101.00 | (-) (1 : 200) |
| 300 | 100.60 | ↓ |
| 330 | 100.00 | |

**OR**

**2.** a) What are various methods of calculating Detailed Estimate? Explain centre line method comment on accuracy, compared to other methods. **6**

b) Estimate the Quantity of earthwork for an embankment of 180 m long and 10 m wide at crest & where side slopes is 2 : 1. The central height from 0 to at 30 m chainage are 0.70, 1.40, 1.75, 2.0, 1.60 m, 1.5 m & 1.2 m using Trapezoidal formula. **7**

**3.** a) Estimate the Quantities for the following items of work for the given Building plan & typical wall section in figure (I) **8**

i) Earthwork in excavation in foundation trenches.

ii) II[nd] class brick masonry in cm 1 : 6 in foundation & plinth.

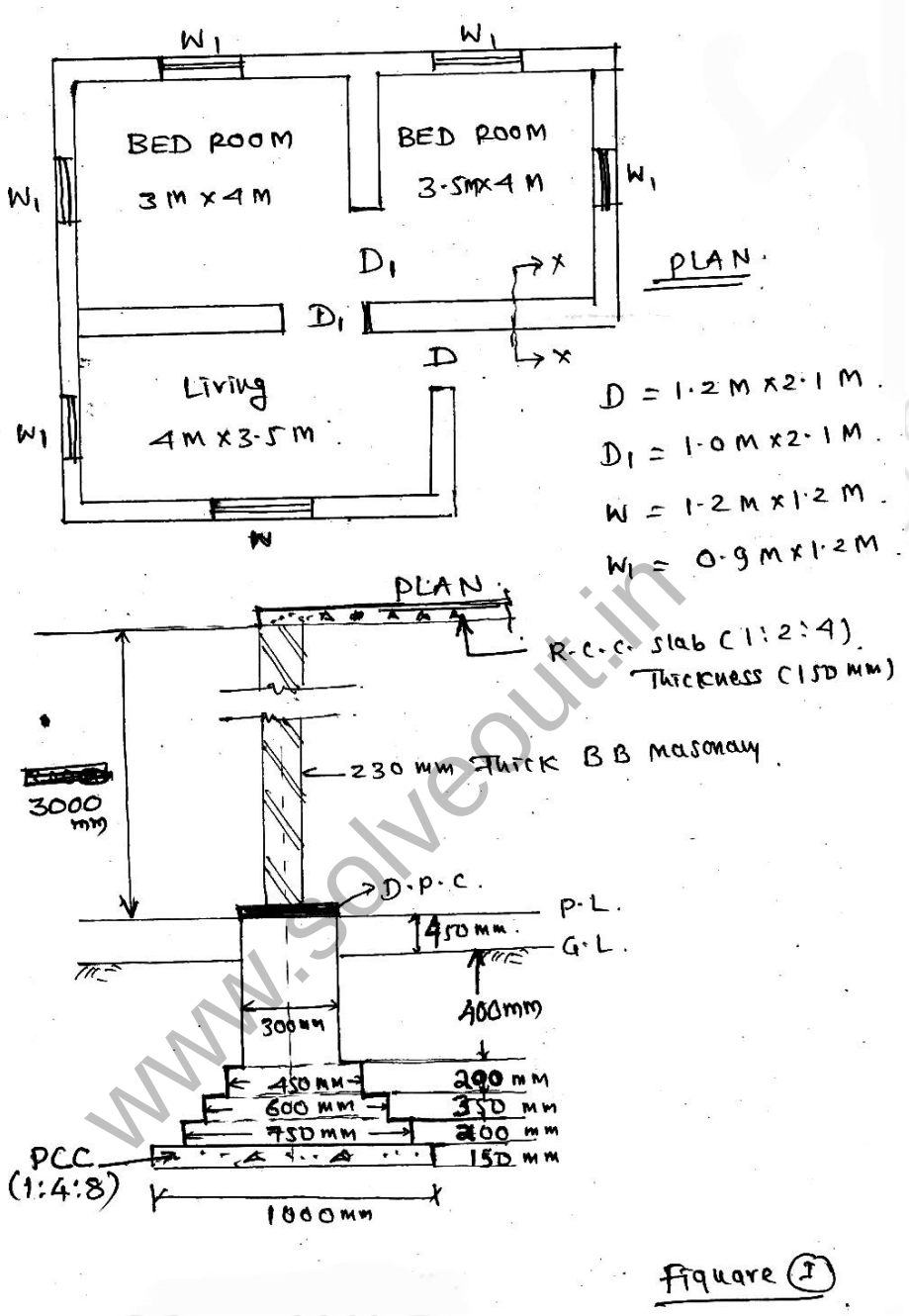


Figure (I)

Section @ x-x

b) A R.C.C. simply supported slab of clear size 3.1m × 6.3m is Reinforced with 10mmϕ@120mmc/c alternately bent up. Distribution bars are 6mmϕ@130mmc/c. Thickness of slab is 130 mm. Bearing of slab is 15 cm. Calculate total Quantity of Reinforcement. Also prepare schedule of bar. **6**

**OR**

**4.** a) As per figure (I) showing plan & section. Calculate **8**

i) II[nd] class brick masonry in cm 1 : 5 in super structure.

ii) 12 mm thick internal cement plaster in cm 1 : 4 for ceiling & walls.

b) A R.C.C. simply spported beam of size $295\,mm \times 645\,mm$ is reinforced with 4 Nos. of 20 mm diameter. Main bars are placed in one row & two bent up. Two anchor bars of 12 mm diameter are provided at top 8 mm diameter stirrups are provided at 140 mm/cc. The overall beam length is 6m. Calculate the total quantity of steel required show bar bending schedule. **6**

**5.** a) Define the term "Contract". What are the various types of contracts? Explain advantages & disadvantages of any two. **6**

b) Explain the terms "Administrative Approval" & Technical Sanction. **7**

**OR**

**6.** a) i) Explain the types of Tender. **6**

ii) Enlist an information to be included in tender notice.

b) i) Explain the contract documents. **7**

ii) Explain the reasons for rejection of the lowest tender.

**7.** a) Define specification. Describe in brief the objects and types of specification. **6**

b) Write a detailed specification of the following items **7**
i) Second day brick masonry in cm 1 : 6 in super structure.
ii) Laying PCC 1 : 4 : 8 mix in foundation.

**OR**

**8.** a) Explain the points to be kept in mind while drafting specification. **7**

b) Explain 'Direct and Indirect charges'. **6**

**9.** a) Define Rate Analysis. Explain factor affecting it. **6**

b) Work - out the rate analysis for the following items **8**
i) Brick - masonry in c.m. 1 : 6 in superstructure with brick size $23cm \times 11cm \times 7cm$.
ii) Plain cement concrete 1 : 4 : 8 mix.

**OR**

**10.** a) Explain in detail the task work of labourer and the factor affecting it. **6**

b) Do the rate Analysis for following items in tabular form. **8**
i) 12 mm thick internal cement plaster is c.m. 1 : 4.
ii) R.C.C. Beam 1 : 2 : 4 with 2% steel excluding shuttering work.

**11.** a) State the methods of valuation of a building. Explain any two. **6**

b) A leasehold property is to produce a net annual income of Rs. 12,000 for the next 30 year. The owner expects a return of 8% on his capital & also sell apart a sinking find instalment to accurate 6% annually to replace the capital. Determine the capitalized value of property. **7**

**OR**

**12.** Write notes on **any three.** **13**
i) Capilatised Value.
ii) Rent Fixation
iii) Depreciation & Obsolescence
iv) Types of value.

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