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

Estimating and Costing

P. Pages : 4 | NRT/KS/19/3517

Time : Four Hours | * 0 2 2 5 * | Max. Marks : 80

Notes :
1. All questions carry marks as indicated.
2. Solve Question 1 OR Questions No. 2.
3. Solve Question 3 OR Questions No. 4.
4. Solve Question 5 OR Questions No. 6.
5. Solve Question 7 OR Questions No. 8.
6. Solve Question 9 OR Questions No. 10.
7. Solve Question 11 OR Questions No. 12.
8. Due credit will be given to neatness and adequate dimensions.
9. Assume suitable data whenever necessary.
10. Illustrate your answers whenever necessary with the help of neat sketches.
11. Use of non programmable calculator is permitted.

1. a) Explain the various types of estimates with suitable example. **7**

b) Prepare a preliminary estimate of multi storeyed office building having carpet area of 2,200sq.m. 35% the building area will be taken up by corridors, verandah, lavatory, staircase etc. and 10% of the built up area will be occupied by walls. Assume plinth area rate to be Rs. 6000/-per sq. m. and also provide for water supply, sanitary fittings & electric installations, contingencies and other services. **6**

OR

2. a) Calculate the volume of earthwork in a road embankment with the following details: **10**

i) Formation width = 10.0m

ii) Side slope in filling = 2:1 and in cutting = 1.5:1

iii) One chain length = 30.0m

iv) Transverse slope is 1 in 40

Distance (m)	G.L. (m)	F.L. (m)
0	136.00	135.20
30	135.00	135.40
60	135.60	135.60
90	135.80	135.80
120	136.00	136.00
150	136.20	136.20
180	136.40	136.40

b) State the method for calculating the earthwork for a road embankment and road cutting. **3**

3. a) Work out the quantities of the following items and enter in the standard measurement sheet with brief description of the item. (Fig.1) **8**

i) Excavation for foundation trenches.

ii) Plane cement concrete (1:4:8) 100 mm thick on the plinth level

b) A RCC simply supported beam of size (400x650) mm is reinforced with 4#20 mm Φ . The main bars are placed in one row and two are bent up. Two anchors bars of 12mm are provided to top and 6 mm Φ stirrups are provided at 150 mm c/c, the span of beam is 6.0 m and end bearing is of 40 cm. Calculate total quantity of steel reinforcement also prepare schedule of bar. Draw L-section and Gross Section of beam. Assume suitable data. **6**

OR

4. a) Work out the quantities of the following items and enter in the standard measurement sheet with brief description of the item. (Fig.1) **8**

i) R.C.C. (1:1.5:3) slab

ii) 12 mm thick cement plaster for internal wall and ceiling

b) A RCC slab overall size 3300 mm x 6800 mm x 130 mm is provided with 16 mm Φ 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 6 mm Φ @ 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**

5. a) Prepare a suitable tender notice to invite tender for the construction of Civil Engineering Department building for R.T.M.N.U. costing 1,00,00,000/. **8**

b) What is "breach of contracts"? Explain in details. **5**

OR

6. a) Explain in details essential requirement of a valid contract. **6**

b) Describe the modes of submission of a tender to the government agency. **7**

7. a) Write a detailed specification of the following items **any two.** **8**

i) Second class brick masonry in CM 1:6 in superstructure

ii) 12 mm thick cement plaster in cement mortar in proportion

iii) Oil painting to wall surfaces

b) Explain in details essential requirement of good specification. **5**

OR

8. a) Write a detailed specification of the following items **any two.** **8**

i) Laying PCC 1:4:8 mix in foundation.

ii) Excavation in foundation.

iii) Cement concrete 1:2:4 for RCC work

b) Write a short note on 'Direct and Indirect charges'. **5**

9. a) Explain **6**

i) Overhead costs

ii) Importance of rate analysis

b) Give the rate analysis of the following items **any two.** **8**

i) 12 mm thick cement plaster in cement mortar in proportion

ii) Laying PCC 1:4:8 mix in foundation.

iii) R.C.C. (1:2:4) with 2% steel in Beam.

OR

10. a) What do you understand by Task work of a labourer? explain the factors affecting task work. **6**

b) Define rate analysis. Explain in detail the major and minor factors affecting the rate analysis. **8**

11. a) Define and explain in detail "Years Purchase" **5**

b) Name the methods of depreciation and explain any two. **8**

OR

12. a) In a plot of land costing Rs. 1 Lakh, building has been newly constructed at a total cost of Rs. 5 Lakh including sanitary and water supply work. The building consists of two flats for tenants. The owner expects 9% return on cost of construction and 5% return on cost of land. Calculate standard rent for each flat of following; **8**
Assume:
i) Future life of building = 70 years.
ii) Annual repairs cost at 1.5% of cost of construction.
iii) Rate of interest for sinking fund = 9%
iv) Other outgoing including taxes to be 40% of gross income.

b) Write short note on Sinking fund. **5**

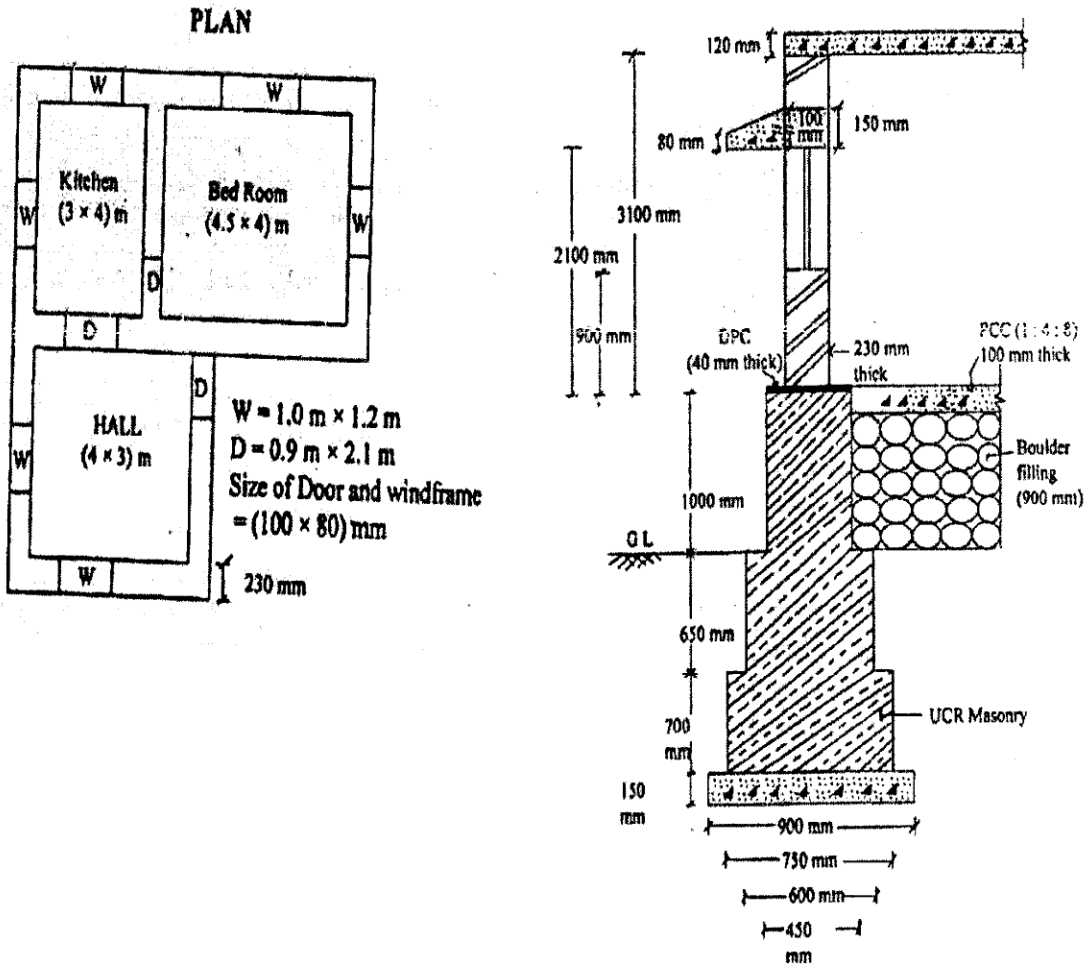
PLAN
Kitchen
(3 × 4) m
Bed Room
(4.5 × 4) m
HALL
(4 × 3) m
W
D
W = 1.0 m × 1.2 m
D = 0.9 m × 2.1 m
Size of Door and windframe
= (100 × 80) mm
230 mm
120 mm
80 mm
100 mm
150 mm
3100 mm
2100 mm
900 mm
DPC
(40 mm thick)
230 mm
thick
PCC (1 : 4 : 8)
100 mm thick
Boulder
filling
(900 mm)
1000 mm
GL
650 mm
700
mm
150
mm
UCR Masonry
900 mm
750 mm
600 mm
450
mm

Fig. 1

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