Code No: 157BM **R18**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, January/February - 2023
ESTIMATION, COSTING AND PROJECT MANAGEMENT
(Civil Engineering)

Time: 3 Hours **Max. Marks: 75**

Note: i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A

(25 Marks)

1.a)	What is detailed estimate.	[2]
b)	What is Plinth area method of estimate?	[3]
c)	What is the purpose of bar bending schedule?	[2]
d)	Find the volume of earth work in embankment of length 10m. Top width is 5.0m and depth is 2.0m the side slopes are 1½:1.	[3]
e)	What is rate analysis?	[2]
f)	Explain how the rate analysis of labour and material considered.	[3]
g)	Distinguish between detailed and general specifications.	[2]
h)	What is Depreciation and Escalation?	[3]
i)	What is critical path?	[2]
j)	Explain the following: i**)** Optimistic time ii) pessimistic time iii) Most likely time estimate.	[3]

PART – B

(50 Marks)

2. Compare the rough estimate and detailed estimate, when will they be used? [10]

OR

3. Discuss in detail about the center line method of estimate. [10]

4. Discuss about the detailed specifications for earth work excavations, filling and backfilling. [10]

OR

5. What is meant by Bar Bending Schedule and discuss about the general principles to be followed and advantages of bar bending schedule to estimate the quantity of steel. [10]

6.a) Discuss rates of a particular item of work. What are the factor that affect rates of as particular item?

b) Prepare a rate analysis for the following items
i) 12mm thick plaster 1:6 cement mortar
ii) First class brick work in super structure 1:3 lime cement mortar. [5+5]

OR

7. Calculate the Quantity of Cement required in bags for the following items.
Calculate the quantity of Cement required in bags for the following items of work.
a) C.C. (1:4:8) usy 40mm HBG metals for $30m^3$ of work
b) RR masanry in CM(1:5) very $0.34m^3$ of CM for $1m^3$ of masanry for 20m of work.[5+5]

8. Write the detailed specifications for plastering and brick work of building. [10]

OR

9. What are the details of a contract document must contain, discuss in detail. [10]

10. What are different elements present in PERT network and explain with an example.[10]

OR

11. Discuss about event, activity and rules for drawing network diagrams. [10]

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R16

Code No: 137CN

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, January/February - 2023
ESTIMATION, QUANTITY SURVEYING AND VALUATION
(Civil Engineering)

Time: 3 Hours **Max. Marks: 75**

Note: i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A

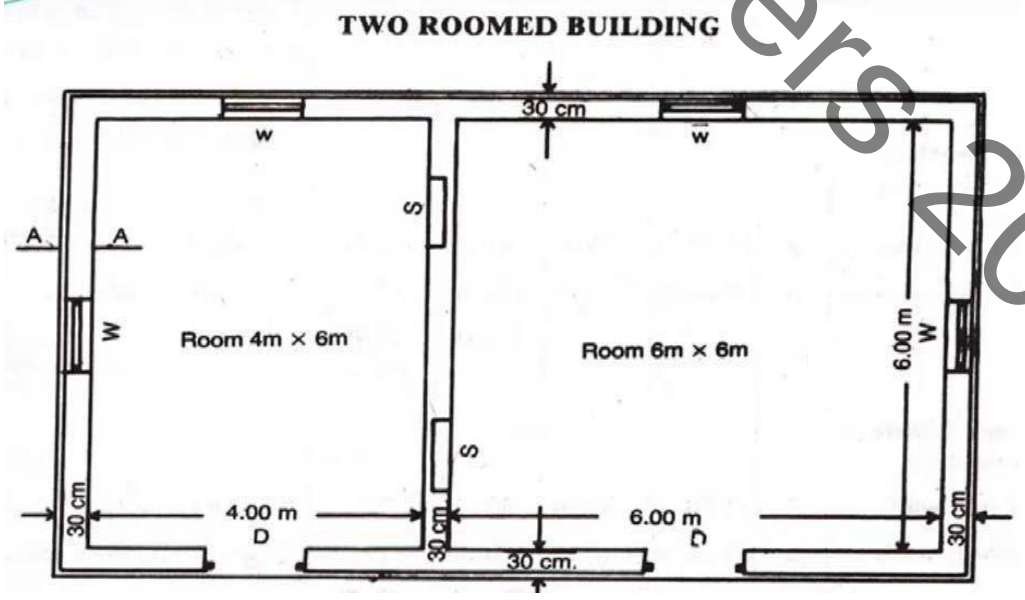
(25 Marks)

1.a)	Define estimate and actual cost.	[2]
b)	Enlist any three purposes of estimation and costing.	[3]
c)	Define lead and lift.	[2]
d)	What is the volume of fully excavated trapezoidal cross section of canal?	[3]
e)	Compare overhead cost and contingent charges.	[2]
f)	What is piece work agreement?	[3]
g)	What is the unit weight of 16mm diameter of bar?	[2]
h)	What are different types reinforcing bars used in beam and draw the sketches?	[3]
i)	What is the Depreciation?	[2]
j)	Why is valuation done?	[3]

PART – B

(50 Marks)

2. Calculate the quantities of the following items for the building shown in **figure 1**, below using long wall and short wall method: (a) Earth work in excavation. (b) Brick work in foundation and plinth. (c) PCC (1: 5: 10) below the foundation. (d) Damp proof course. (e) Brick masonry in CM (1:6) for super structure. [10]



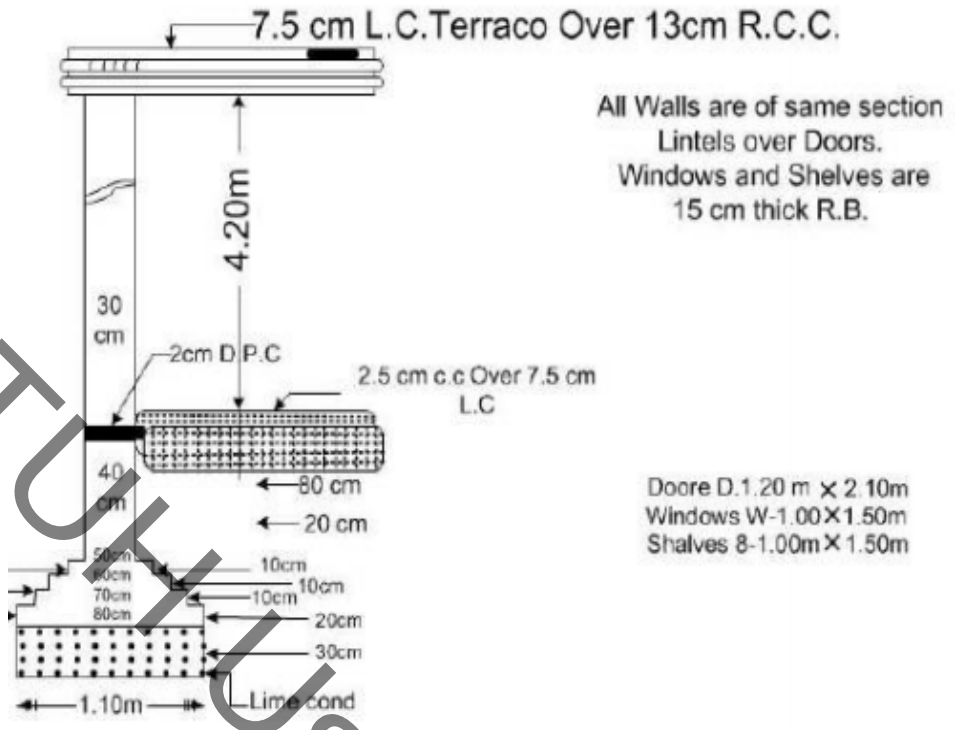


Figure 1

OR

3. Work out the quantities for the following items for figure shown below figure 2.
   a) Earth work excavation.
   b) Cement concrete in foundation.
   c) Brick work.
   d) 2.5 cm CC (1:1.5:3) in surface finish. [10]

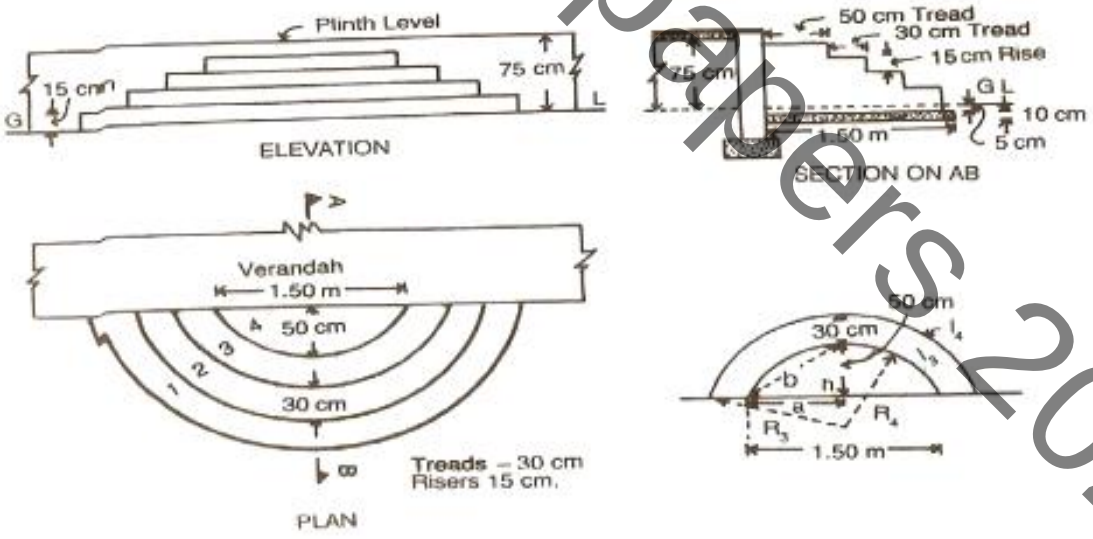


Figure 2

4. The ground level along the ridge of proposed canal area as shown in fig. the bed of the canal is 4m wide and sloped at 1:100 in longitudinal direction. The side slopes at 1.5:1. RL of formation at 0 m chainage is 250 m. Determine the volume of the earth work is cutting by trapezoidal and primisoidal methods. [10]

Dis in m	252	252.15	251.7	251.75	251.95	251.85	252
chainage	0 m	30m	60m	90m	120m	150m	180m

OR

5. Estimate the quantity of earth work for an embankment, 120 m long, 8m wide at crest and whose side slopes is 2 to 1. The central height from 0 to at every 30 m intervals are 0.60 m, 1.2 m, 1.6 m, 2.0 m and 1.3 m. Calculate the earth work using mid-section formula and trapezoidal formula. [10]

6. Given the rate analysis for following, (a) 12 mm cement plastering in ceiling 1:3 with coarse sand - unit 1 cu m. take 10cu m, (b) lime concrete in foundation. Assume necessary data. [10]

OR

7. Given the rate analysis for following
a) 1st class brick work in foundation with 1:3 cement mortar- unit 1 cu m.
b) Plinth beam with M20 cement concrete take 10 Cum. Assume necessary data.[5+5]

8. Prepare a bar bending schedule of a R.C.C beam of 8 m clear span and 75cm × 40 cm in section from the given drawings. Estimate the total quanity of steel required. As shown in figure 3. [10]

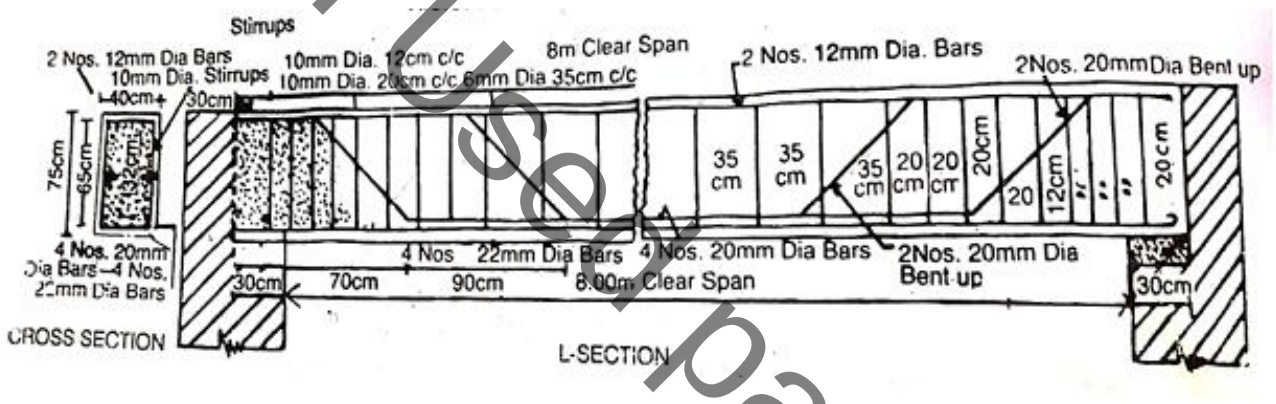


Figure 3

OR

9. List out types of contracts and explain any two with its advantages and disadvantages and suitability. [10]

10. Explain in detail the specification for building item of reinforced cement concrete for a beam and stone masonry. [10]

OR

11. What is meant by valuation? Explain the different types of valuation. [10]

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Code No:157BM **R18**

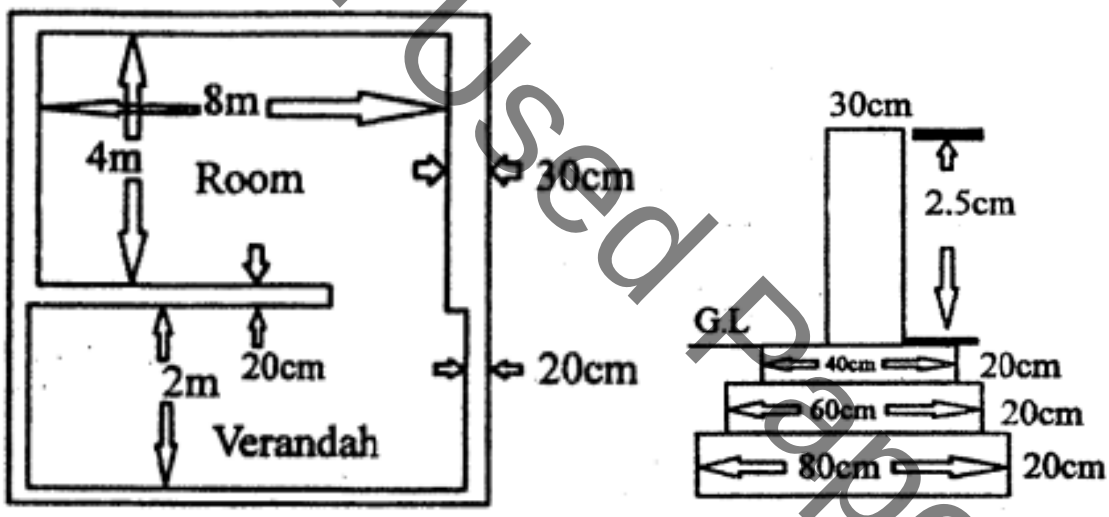
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech IV Year I Semester Examinations, July/August - 2022
ESTIMATION, COSTING AND PROJECT MANAGEMENT
(Civil Engineering)

Time: 3 Hours **Max.Marks:75**

Answer any five questions
All questions carry equal marks
- - -

1. What do you mean by estimate? Also explain the different methods of estimate in detail. [15]

2. Find the quantity of Earth work, lime concrete in foundation and brick work in super structure of single room with verandah as per the plan and elevation given below.And door size is 1.2m × 2.0m. [15]



3. A simply supported beam of size 300mm × 450mm resting on two wall supports of 300mm thick with clear distance between supports 4500mm. The reinforcement provided in the beam is as follows. Calculate quantity of steel in beam. [15]

Top bar	Bottom bar	Bent up bar	Stirrup
2Nos-10 Ø	3Nos-12 Ø	2Nos-16 ø	8 ø @150 c/c

4. Calculate the quantity of earthwork, for a bank of canal from following data:
a) Top width 1.8m b) R.L. Top of the Bank: 104.00m, c) Side slope 2:1 on one side & 2.5:1 on other side. [15]

Chainage	30	60	90	120	150
Ground Level	101.50	101.30	101.150	101.00	99.00

5. What is Rate Analysis? Also explain its importance in construction work. Find the rate analysis for 100 sq. m of plastering with mortar ratio of 1:6. [15]

6. Find the rate analysis of 10 $m^3$of cement concrete work in foundation of 1:5:10 with brick ballast of 40mm gauge. Assume the rates. [15]

7. What is Valuation and Depreciation? Explain different methods of Depreciation. [15]

8.a) What are the different stages of construction project planning.
b) Write a short note on CPM and PERT. [8+7]

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Code No: 137CN **R16**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, July/August - 2022
ESTIMATION, QUANTITY SURVEYING AND VALUATION
(Civil Engineering)

Time: 3 Hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
- - -

1.a) Explain the earthwork in excavation in foundations of buildings by the application of long wall – short wall method.
b) Apply the mid sectional area method for calculating quantity of earthwork in road estimating and explain the procedure. [7+8]

2. Estimate the quantities of the following items of two roomed building. Assume the room size, wall thickness and other data.
a) Earthwork in excavation in foundation
b) Lime concrete in Foundation
c) 1st class brick work in cement 1:6 in foundation and plinth
d) 2.5cm CC dam proof courses. [15]

3. The formation width of a road embankment is 10.0m. The side slopes are 2.5:1. The depths along the center line of road at 40.0m intervals are 1.2, 1.1, 1.4, 1.2, 0.9, 1.5 and 1.0.m. It is required to calculate the quantity of earthwork by Prismoidal rule. [15]

4. Estimate the cost of earthwork for a portion of a road from the following data:
Road width at the formation surface is 8 meters. Side slopes 2:1 in banking and 1½:1 in cutting. Length of chain is 30 meters.

Chainage	20	21	22	23	24	25	26	27	28	29	30
Ground Level	71.20	71.25	70.90	71.25	70.80	70.45	70.20	70.35	69.10	69.45	69.70
Formation Level	70.00 ← Upward gradient of 1 in 200 →										

Take the rates of earthwork as Rs. 275/- per % cu.m in banking and Rs. 350/- per % cu.m in cutting. [15]

5.a) Perform the Rate analysis for the Cement Concrete Floor 1:2:4.
b) Explain briefly the various factors affecting the rate analysis. [7+8]

6.a) Analyze the rates of 1cumof RCC (1:2:4) slab reinforced with MS reinforcement up to 90kg/cum of CC including Centering and Shuttering laid in position, complete in all respects. Assume suitable market rates.
b) Calculate the quantity of materials required for preparing $1m^3$ of RCC works for 1:2:4 cement concrete. Also prepare the analysis of rates for materials only. (Assume suitable data as required). [7+8]

7.a) Brief the application about any five types of contracts in construction industry with their suitability.

b) Describe different types of penalties imposed on a contract and why such penalties are imposed. [8+7]

8. A building is situated by the side of a main road of Mumbai city on a land of 600 sq.m. The built-up portion in 25m × 30m. The building is first class type and provided with water supply, sanitary and electric fittings, and the age of the building is 30 years. Workout the valuation of the property. Assume plinth area rate is Rs.400.00 and cost of land as Rs.7000 per sq.m [15]

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Code No:157BM **R18**

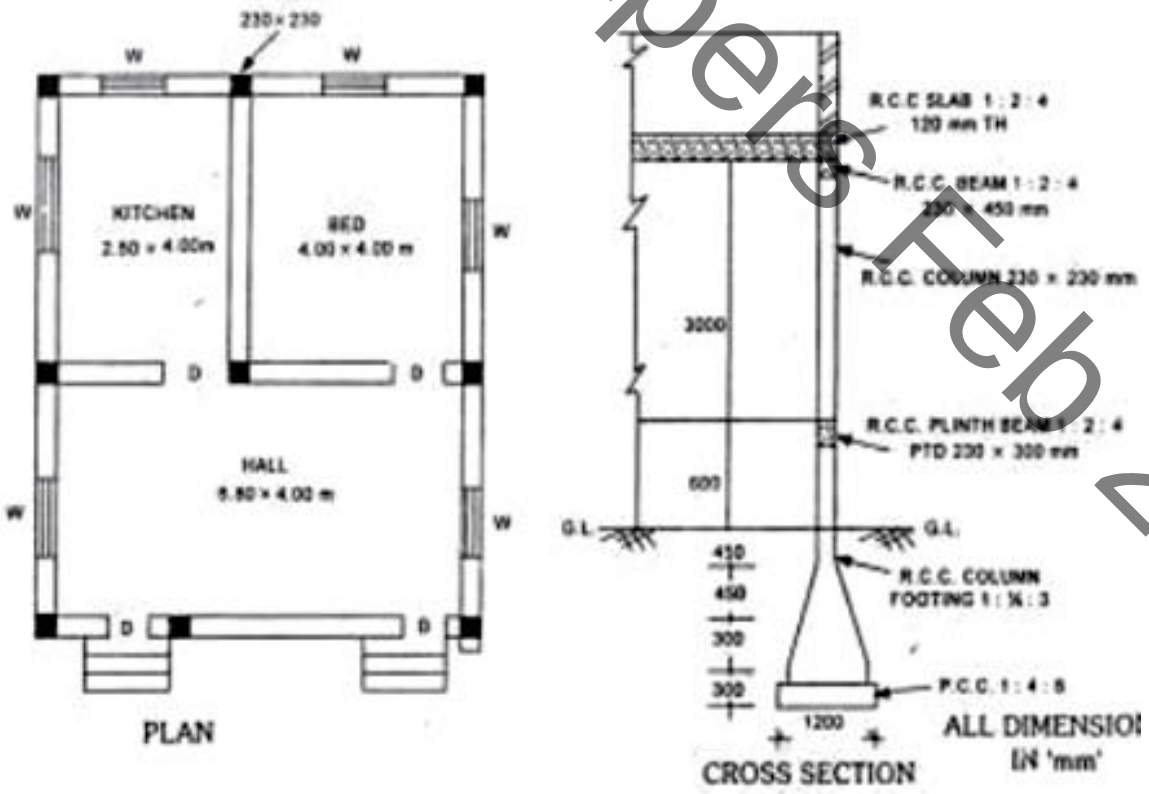
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech IV Year I Semester Examinations, February/March - 2022
ESTIMATION, COSTING AND PROJECT MANAGEMENT
(Civil Engineering)

Time: 3 Hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
- - -

1. Prepare the approximate cost of building project (group Houseing)
   a) No.of houses = 150
   b) Plinth area of each dwelling = 600m^2
   c) Plinth area rate = Rs. 5,000/-per m^2
   d) Cost of water supply & sanitary arrangements @12½%
   e)Electrification at 7½% of cost of builing.
   f) Cost of roads & Lawns @5%
   g) Cost of P.S.& contingencies @4%. [15]

2. Repare the detailed estimate for the following items of work for the building shown in figure. a) R.C.C. (1:1.5:3) in columns upto ground level only. b) R.C.C. (1:2:4) in plinth Bleams. [15]



3. Calculate the volume of earth work for part of a road from the following data: [15]

Chainage in mts	600	630	660	690	720	750	780	810	840	870	900
RL in mts	61.20	61.25	60.90	61.25	60.80	60.45	60.20	60.35	59.10	59.45	59.7
FL in mts	60.00	← Upward gradient 1 in 200 →									
		60.15	60.30	60.45	60.60	60.75	60.90	61.05	61.20	61.35	61.50

4. A RCC beam of 8m length, 0.35m breadth and 0.45m depth is reinforced with 2No.of diameter 12mm @ top, 4No. of diameter 20mm @ bottom, stirrups 2L diameter 8mm @ 175mm c/c is provided throughout its length. Estimate the cost of RCC beam. [15]

5. Calculate the quantity of materials for the following items.
a) C.M. (1:4) for $1m^3$ of work
b) CM (1:6) for $1m^3$ of work. [7+8]

6. Calculate the quantity of Cement required in bags for the following items of work.
a) C.C. (1:4:8) usy 40mm HBG metals for $30m^3$ of work
b) RR masanry in CM(1:5) very $0.34m^3$ of CM for $1m^3$ of masanry for 20m of work.[7+8]

7. Explain the terms a) Administrative Approval b) Technical sanction c) Budget provision d) Expenditure sanction. [15]

8. An equipment that was purchased at a cost of Rs 20 lakhs, six years age is considered for replacement. The existing equipment can be sold at a price of Rs. 5 lakhs and if kept for another six years will have salvage value of Rs. 1 lakh. The challenger has annual operating cost of Rs. 50000/- and its salvage value is Rs. 5 lakhs at the end of 12 years. Rate of interest is 10%. Decide whether to continue services of existing equipment or replace it. [15]

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R16

Code No: 137CN

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, February/March - 2022
ESTIMATION, QUANTITY SURVEYING AND VALUATION
(Civil Engineering)

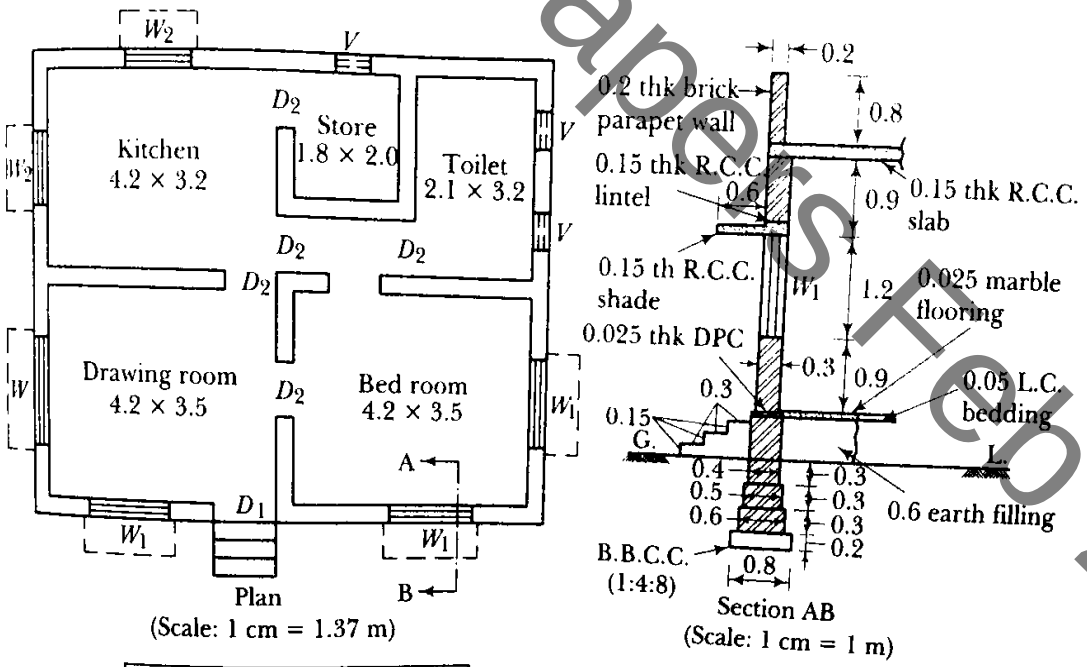
Time: 3 Hours **Max. Marks: 75**

Answer Any Five Questions
All Questions carry equal marks
- - -

1.a) Explain the importance of Estimation in Civil Engineering.
b) Explain the principle of measurement and process of estimating quantity of Earthwork in excavation. [9+6]

2.a) Discuss about different methods of rough estimate.
b) Explain the principle of measurement and process of estimating quantity of Brick work in super structure. [8+7]

3. Estimate the quantity of earthwork in excavation for foundation, DPC and brickwork in parapet wall for the building shown in Figure 1. [15]



D	1.1 × 2.1	W_1	1.5 × 1.2
D_2	0.9 × 2.1	W_2	1.2 × 1.2
W	1.8 × 1.2	V	0.6 × 0.6

All dimensions are in metres

Figure.1

4.a) For the building shown in figure 2. Estimate the quantity of brickwork in super structure.
b) Prepare bar bending schedule for the one way slab 3m × 6m shown in fig.2. [8+7]

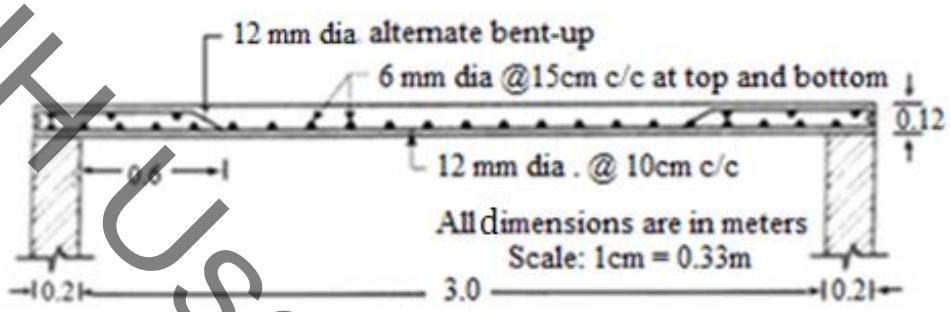


Figure. 2

5. Estimate the quantity of earth work for formation of a road with the following data. Formation width 10 m, side slopes 1:2 (V:H)and Longitudinal gradient of road is 1 in 400 downward from 0 to 500 m. Formation level at 0 chainage is 39.5 m. [15]

Chainage (m)	0	100	200	300	400	500
GL	40	39.6	39.2	39.1	39.5	39.3

6. Calculate the quantity of earth work of a portion of a canal with the following data; Bed width 5 m, Free board 0.5 m, side slope 1: 1.5, Full supply depth 1.5 m, top width of both bunds 1.8 m.

Station	0	100	200	300	400	500	600
Ground Level (m)	30.2	29.8	29.5	29.2	29.5	30.0	30.1
Bed Level (m)	29.0 ←------- downward slope 1 in 2000 ---- →						

[15]

7. Workout the unit rate for:
a) 12 mm thick Mosaic flooring over 100 mm thick cc (1:5:10)
b) 1st class brickwork with1:6 cement mortar in foundation and plinth [8+7]

8.a) Discuss the merits and demerits of item-rate Contract.
b) Write detailed Specifications for 1st class brickwork with 1:6 cement mortar in Super structure. [8+7]

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Code No: 137CN **R16**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, September - 2021
ESTIMATION, QUANTITY SURVEYING AND VALUATION
(Civil Engineering)

Time: 3 Hours **Max. Marks: 75**

Answer any Five Questions
All Questions Carry Equal Marks
- - -

1. Mention different types of estimates and explain them in detail. [15]

2.a) Estimate the quantities of the following items using long wall & short wall method
i) Earthwork in Excavation in foundation
ii) Lime Concrete in foundation
iii) Ist Class Brick work in cement mortar 1:6 in foundation & plinth.
iv) 2.5 cm c.c damp proof course
v) Ist class brickwork in lime mortar in super structure.
b) Explain about Centre line Method. [7+8]

3. Calculate the quantity of each work for 200m length for a portion of a road in an uniform ground the heights of bank at the two ends being 1.00m and 1.60m. The formation width is 1.0 m and side slopes 2:1 (H:V). Assume that there is no transverse slope. Use the following methods and justify which method is good.
a) Prismoidal formula and
b) Mean - sectional area method. [7+8]

4. 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 and the road is in downward gradient of 1 in 150 up to the chainage 14th and then the gradient changes to 1 in 100 downward .Formation width of road is 10m and side slopes of banking are 2:1 (H:V). Length of the chain is 30 m.
Draw longitudinal section of the road and a typical cross section and prepare an estimate of earthwork at the rate of Rs. 275.00% cum
Find also the area of the side slopes and the cost of turfing the side slopes at the rate of Rs.60.00% per Sqm. R.L of Formation 107.00.(Assume data if required). [15]

Chainage	10	11	12	13	14	15	16	17	18	19	20
R.L of Ground	105.00	105.60	105.44	105.90	105.42	104.30	105.00	104.10	104.62	104.00	103.30
Gradient	Down gradient 1 in 150					Down gradient 1 in 100					

5.a) Describe the procedure for the calculation of rate per unit Cum of RCC work in Beams and slabs (1:2:4) work excluding steel but including centering and shuttering.
b) Define Rate analysis and explain its purpose. [7+8]

6.a) Describe the procedure for the calculation of rate per unit Cum of RCC work for columns, (1:2:4) work including steel and centering and shuttering.

b) Describe the procedure for the calculation of rate per cum of cement concrete 1:2:4 with stone ballast 40 mm size. [7+8]

7.a) Write short notes on the following:
i) Informal Tender
ii) Acceptance of tender
iii) Unbalanced Tender

b) List out various conditions of contract. [7+8]

8. Write specifications for the following
a) Removal of water from foundation.
b) White washing in three coats.
c) Random rabble masonry. [5+5+5]

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Code No: 137CN **R16**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, September - 2021
ESTIMATION, QUANTITY SURVEYING AND VALUATION
(Civil Engineering)

Time: 3 Hours **Max. Marks: 75**

Answer any Five Questions
All Questions Carry Equal Marks
- - -

1. Mention different types of estimates and explain them in detail. [15]

2.a) Estimate the quantities of the following items using long wall & short wall method
i) Earthwork in Excavation in foundation
ii) Lime Concrete in foundation
iii) Ist Class Brick work in cement mortar 1:6 in foundation & plinth.
iv) 2.5 cm c.c damp proof course
v) Ist class brickwork in lime mortar in super structure.
b) Explain about Centre line Method. [7+8]

3. Calculate the quantity of each work for 200m length for a portion of a road in an uniform ground the heights of bank at the two ends being 1.00m and 1.60m. The formation width is 1.0 m and side slopes 2:1 (H:V). Assume that there is no transverse slope. Use the following methods and justify which method is good.
a) Prismoidal formula and
b) Mean - sectional area method. [7+8]

4. 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 and the road is in downward gradient of 1 in 150 up to the chainage 14th and then the gradient changes to 1 in 100 downward .Formation width of road is 10m and side slopes of banking are 2:1 (H:V). Length of the chain is 30 m.
Draw longitudinal section of the road and a typical cross section and prepare an estimate of earthwork at the rate of Rs. 275.00% cum
Find also the area of the side slopes and the cost of turfing the side slopes at the rate of Rs.60.00% per Sqm. R.L of Formation 107.00.(Assume data if required). [15]

Chainage	10	11	12	13	14	15	16	17	18	19	20
R.L of Ground	105.00	105.60	105.44	105.90	105.42	104.30	105.00	104.10	104.62	104.00	103.30
Gradient	Down gradient 1 in 150					Down gradient 1 in 100					

5.a) Describe the procedure for the calculation of rate per unit Cum of RCC work in Beams and slabs (1:2:4) work excluding steel but including centering and shuttering.
b) Define Rate analysis and explain its purpose. [7+8]

6.a) Describe the procedure for the calculation of rate per unit Cum of RCC work for columns, (1:2:4) work including steel and centering and shuttering.

b) Describe the procedure for the calculation of rate per cum of cement concrete 1:2:4 with stone ballast 40 mm size. [7+8]

7.a) Write short notes on the following:
i) Informal Tender
ii) Acceptance of tender
iii) Unbalanced Tender

b) List out various conditions of contract. [7+8]

8. Write specifications for the following
a) Removal of water from foundation.
b) White washing in three coats.
c) Random rabble masonry. [5+5+5]

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R16/R15/R13/R09

Code No: 137CN/127DE/117DE/57007

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, March - 2021
R16 - ESTIMATION, QUANTITY SURVEYING AND VALUATION/
R15/R13/R09 - ESTIMATING AND COSTING
(R16 – Civil Engineering; R15 - Civil Engineering; R13 - Civil Engineering;
R09 - Civil Engineering)

Time: 3 Hours **Max. Marks: 75**

Answer any Five Questions
All Questions Carry Equal Marks
- - -

1. Explain the following general items of work involved in the estimation for a building along with the process of calculations.
   a) Earthwork in excavation.
   b) Earthwork in filling.
   c) Brick flat soling.
   d) Cement concrete in foundation.
   e) Masonry work in foundation.
   f) Damp proof course.
   g) Masonry work in superstructure.
   h) 10 cm thick brickwork. [15]

2.a) Explain the earthwork in excavation in foundations of buildings by
   i) Long wall – Short wall method.
   ii) Centre line method
   b) Enumerate the different methods of building estimates and explain them. [10+5]

3. Prepare a detailed estimate for earthwork for a portion of a road from the following data.

Distance in m	RL of ground	RL of the formation 115.00
0	114.50	Upward gradient 1 in 200 up to 600 m
100	114.75	
200	115.25	
300	115.2	Downward gradient 1 in 400
400	116.10	
500	116.85	
600	118.20	
700	118.45	
800	118.35	
900	117.10	
1000	117.80	
1100	117.90	
1200	117.50	

Formation width of road is 8m, side slopes are 2:1 in banking and 1 1/2:1 in cutting.[15]

4.a) Prepare rate analysis for
i) RCC work in slabs 1:2:4.
ii) 1st class brick work in superstructure with 1:6 CM
b) Calculate the rate of 2.5 cm thick D.P.C with cement and sand in (1:2). [10+5]

5.a) Explain the method of valuation of a building along with an example by valuation based on profit.
b) Discuss various types of contracts in construction along with their suitability.
c) Explain different methods of depreciation. [5+5+5]

6. The formation width of a road embankment is 10.0m. The side slopes are 2.5:1. The depths along the center line of road at 40.0 m intervals are 1.2, 1.1, 1.4, 1.2, 0.9, 1.5 and 1.0 m. It is required to calculate the quantity of earthwork by Prismoidal rule. [15]

7.a) Explain the Prismoidal formula and Mean - sectional area method
b) Derive the formulae for earthwork in the following situations:
i) Partly in cutting and partly in banking (ii) when transverse slope existed. [8+7]

8. A building is situated by the side of a main road of Mumbai city on a land of 600 sq.m. The built-up portion in 25 m × 30 m. The building is first class type and provided with water supply, sanitary and electric fittings, and the age of the building is 30 years. Workout the valuation of the property. Assume plinth area rate is Rs. 400 and cost of land as Rs. 7000 per sq.m. [15]

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Code No: 137CN **R16**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, October/November - 2020
ESTIMATION, QUANTITY SURVEYING AND VALUATION
(Civil Engineering)

Time: 2 Hours **Max. Marks: 75**

Answer any Five Questions
All Questions Carry Equal Marks
\- - -

1.a) Discuss centerline and long wall- short wall method of preparing detailed estimate.
b) Prepare a list for general items of estimate according to the progress of construction work. [7+8]

2. Explain the following general items of work involved in the estimation for a building and its process calculation.
a) Earthwork excavation for foundation trenches
b) Earthwork in filling
c) Cement or lime concrete in foundation
d) Damp proof course. [15]

3. Explain the Mid Sectional Area method and Mean Sectional Area method for calculating quantity of earth work in road estimation. [15]

4. The width of road embankment is 10m. The side slopes are 2:1. The depth along the centre line road at 50m intervals are 1.25, 1.10, 1.50, 1.20, 1.0, 1.10, 1.15m. Calculate the Quantity of earth work by
a) Mid sectional rule b) Trapezoidal rule c) Prismoidal rule. [15]

5.a) Explain Analysis of Rates and factors affecting rate of an item of work. Give different heads used in Analysis of Rates.
b) Describe the procedure for the calculation of rate per unit cum of cement concrete 1:2:4 with stone ballast 40 mm. [7+8]

6. Prepare the lead statement for the following materials [15]

S.No	Material	Rate at source	Lead in Km			Conveyance charges per Km
			MT	CT	ST	
1	40mm HBG metal	Rs. 1200 / cu.m	-	8	9	Rs. 50 per cu.m
2	River sand	Rs. 1500 / cu.m	6	8	12	Rs. 35 per cu.m
3	Cement	Rs. 275 / bag	5	-	7	Rs. 5 per bag

7.a) Explain the different types of contract systems adopted for construction industry.
b) What is a contract document? Describe its important clauses. [7+8]

8.a) What is depreciation? What are the methods of determining the depreciation?
b) A building is situated by the side of a main road of Hyderabad city on a land of 600 sq.m. The built up portion is 22m × 17m. The building is first class type and provided with water supply, sanitary and electric fittings, and the age of the building is 30 years. Workout the valuation of the property. Assume plinth area rate as Rs.200.00 per sq.m. and cost of land as Rs.6000 per sq.m. [7+8]

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R16

Code No: 137CN

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech IV Year I Semester Examinations, December - 2019
ESTIMATION, QUANTITY SURVEYING AND VALUATION
(Civil Engineering)

Time: 3 Hours **Max.Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART- A

(25 Marks)

1.a) Explain about items of work (i) Earthwork and (ii) Damp proof course. [2]
b) What is an approximate estimate? Write its limitations [3]
c) Explain about trapezoidal rule? [2]
d) Explain about partially cutting and partially filling and also their Area calculation in earthwork estimation? Draw the figure? [3]
e) What do you mean by RMC and how many cum it contains? [2]
f) Describe the procedure for the calculation of rate per unit cum of RR stone masonry in foundation and plinth [3]
g) Draw the figure of cranked bar. [2]
h) Define conditions of contract and mention their object and importance. [3]
i) What are the main purposes of valuation? List out the methods? [2]
j) Write shorts notes on Book value and Monopoly value. [3]

PART-B

(50 Marks)

2.a) Estimate the quantities of the following items using any of the method
i) Earthwork in Excavation in foundation
ii) Lime Concrete in foundation
iii) I^{st}Class Brick work in cement mortar 1:6 in foundation & plinth.
iv) 2.5 cm c.c damp proof course
v) I^{st}class brickwork in lime mortar in super structure.

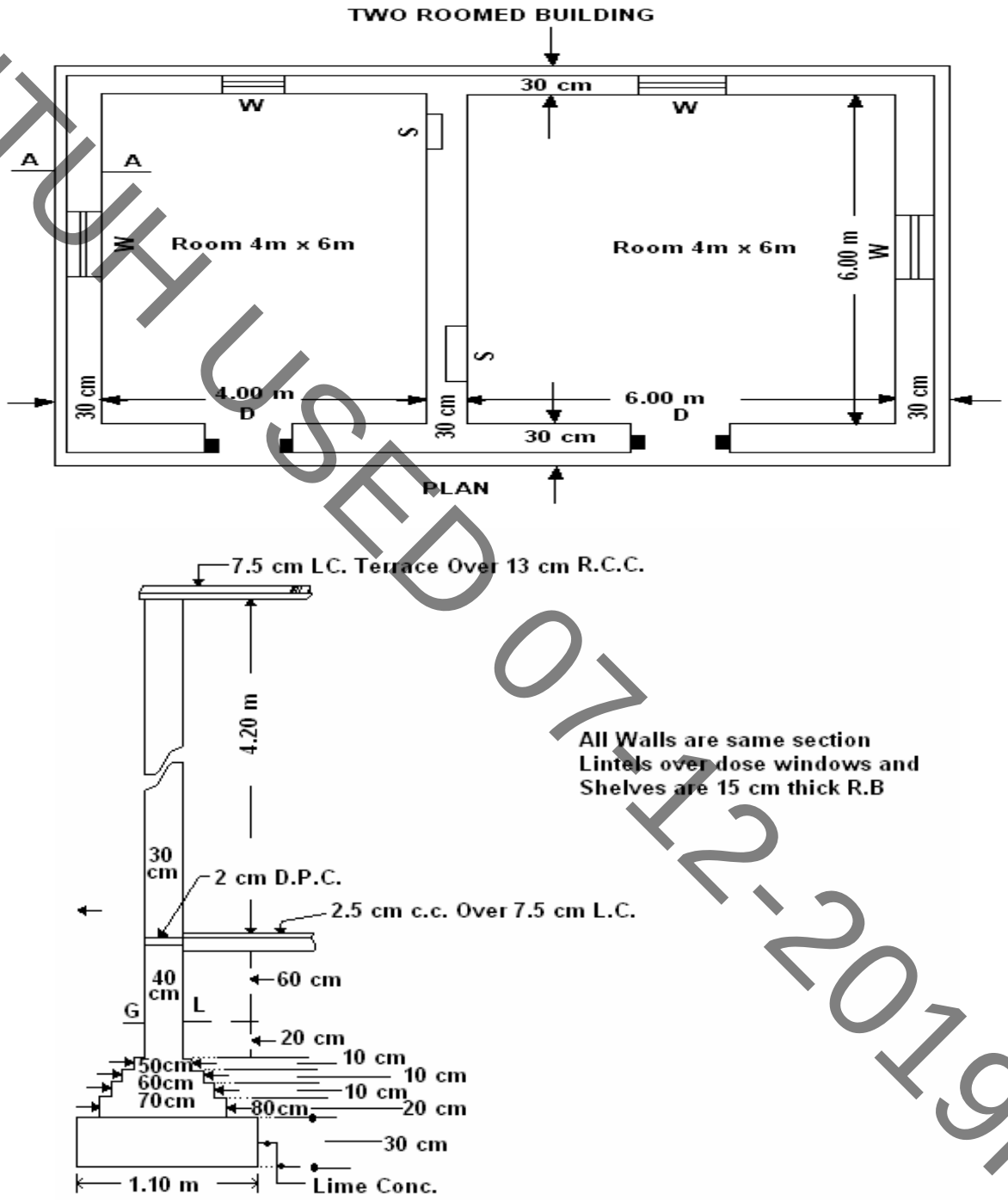


Fig: Plan and fectional details of a two romed buildings.

b) What do you mean by detailed estimate and abstract estimate? [10]

OR

3.a) Estimate the quantities of the following items using Centre line Method

i) Earthwork in Excavation in foundation

ii) Lime Concrete in foundation

iii) IstClass Brick work in cement mortar 1:6 in foundation & plinth.

iv) 2.5 cm c.c damp proof course

v) Istclass brickwork in lime mortar in super structure.

b) Explain about long wall and short wall method. [10]

4. The formation width of a road embankment is 9.0m. The side slopes are 2.5:1. The depths along the center line of road at 50.0m intervals are 1.2,1.1,1.4,1.2,0.9,1.5 and 1.0.m. It is required to calculate the quantity of earthwork by
a) Prismoidal rule.
b) Trapezoidal rule. [10]

OR

5. Estimate the cost of earthwork for a portion of a road from the following data: by using "Mean Sectional Area Method". Road width at the formation surface is 8m. Side slopes 2:1 in banking and 1.5: 1 in cutting. Length of chain is 30m.Formation Level is 70.0 at 20thchainage.

Chainage	20	21	22	23	24	25	26	27	28	29	30
Ground Level	71.20	71.25	70.90	71.25	70.80	70.45	70.20	70.35	69.10	69.45	69.70
Upward Gradient	**1 in 200**										

The rates of earthwork as Rs. 275 per % Cum in banking and Rs. 350 per % Cum in cutting. [10]

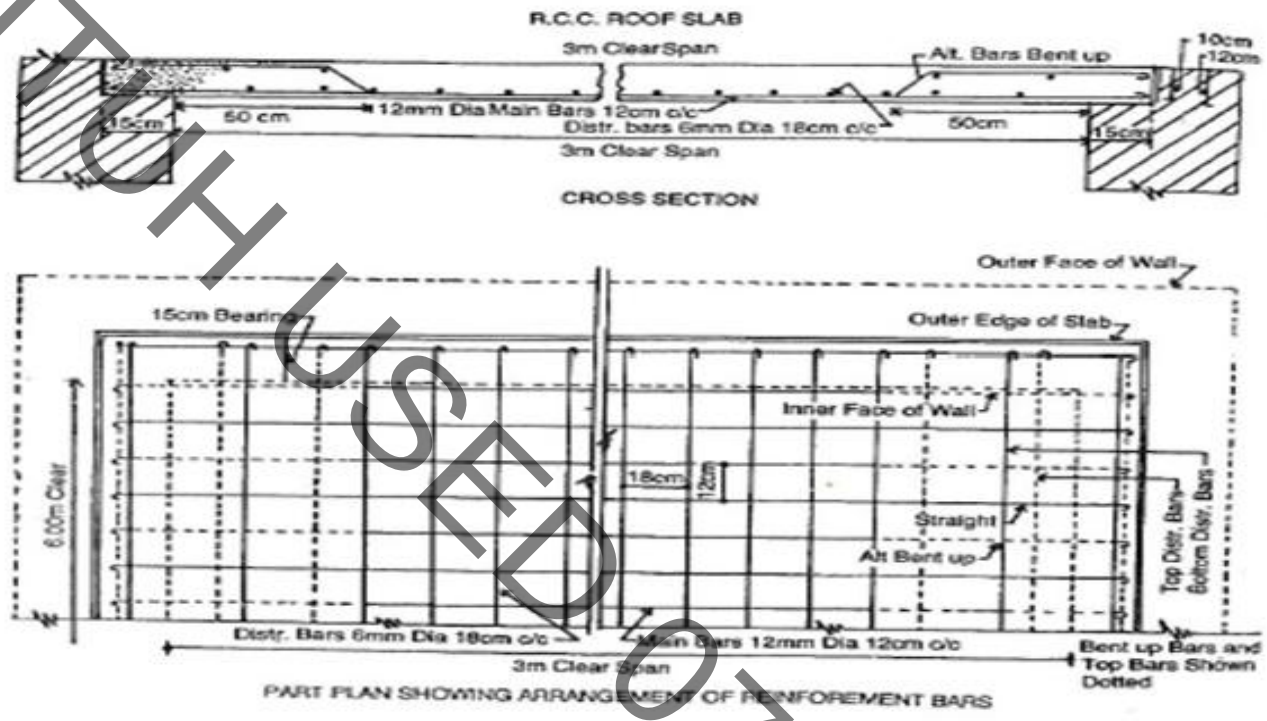
6.a) Calculate rate per unit cum of RCC work in Beams, (1:1:2) excluding steel but including centering and shuttering
b) What are the requirements of rate analysis? [10]

OR

7. Analyse the rates of white washing with lime on new work and white washing with lime on old work to give and even shade. Assume the data required. [10]

8. Prepare a detailed estimate of a RCC roof slab of 3m clear span and 6m long from the given drawings. RCC work including shuttering and centering and steel reinforcement in detail shall be taken separately. Also, prepare a schedule of bars.
Take cost of RCC work excluding steel and its bending but including centering and shuttering and binding of steel = Rs.800/- per cu.m. and cost of steel bars (mild steel) including its bending = Rs.700/- per quintal. [10]

(CO4)



OR

9.a) Draw the sketch of the steel bars and derive the additional length in two cases - one bent up of 45^0 cranked bar and one bent up of 30^0 cranked bar.

b) Write short note on (i) Contract (ii) Earnest Money Deposit. [10]

10.a) A colonizer intends to purchase a land of 100,000 sq m area located in the suburb of a big city to develop it into plots of 700 sq.m each after providing necessary roads and parks and other amenities. The current sale price of small plots in the Neighborhood is Rs.25.00 persq.m. The colonizer wants a net profit of 25%. Work out the maximum price of the land at which the colonizer may purchase the land.

b) Explain any one method of valuation of buildings. [10]

OR

11.a) Differentiate between the following
i) Drawings and specifications
ii) Brief specifications and detailed specifications

b) List and explain standard specifications of a first class building. [10]

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