SRI VIDYA COLLEGE OF ENGINEERING & TECHNOLOGY

VIRUDHUNAGAR

CE6704 ESTIMATION & QUANTITY SURVEYING

UNIT-I

ESTIMATE OF BUILDINGS

QUESTIONS & ANSWERS

PART – A

1. *Define estimate. (Nov./Dec.2010)*

An estimate is a computation or calculation of the quantities required and expenditure likely to be incurred in the construction of a work. The estimate is the probable cost of a work and is determined theoretically by mathematical calculation based on the plans and drawing and current rates.

2. *What are the methods of estimate?*

   1. Long wall & short wall method,

   2. Centre line method.

3. *What are the types of estimate? (Nov./Dec.2007, 2009, 2011)*

   ➢ Preliminary Estimate or Rough cost estimate

      ➢ Plinth area method

      ➢ Cube Rate method or Cubical Content method

      ➢ Service unit method

      ➢ Bay method

      ➢ Cost comparison method

   ➢ Detailed Estimate

      ➢ Details of measurement and calculation of quantities

      ➢ Abstract of estimate

   ➢ Quantity estimate or quantity survey

   ➢ Revised Estimate

   ➢ Supplementary Estimate And Revised Estimate.

   ➢ Annual Repair or Maintenances Estimate.

4. *Briefly explain about preliminary Estimate. (Apr./ May 2011)*

    The estimate which prepared using any rough method to get the approximate cost construction anticipated in a project is called an approximate or rough estimate. Since this estimate is normally prepared in the preliminary estimate.

5. *Estimate the quantities of brickwork and plastering required in a wall 4m long, 3m high and 30 cm thick. Calculate also the cost if the rate of brickwork is Rs.32.00 per cu.m and of plastering is Rs. 8.50 per sq.m*

    Quantities of brickwork = LxBxH

             = 4m x 3m x 0.30m

             = 3.6 cu.m

Quantity of plastering (two faces) = 2 x 4m x 3m

             = 24sq.m

    Cost of brickwork =3.6 x 320.00

           = Rs.1152.00

    Cost of plastering = 24x 8.50

        = Rs.204.00

     Total cost =1152.00 + 204.00

        = Rs.1356.00

6. *Define: Detailed estimate*

    The estimate, which provides the itemwise quantities of works, item wise unit rates and itemwise expenditure anticipated in thre project/construction, is called a detailed estimate

7. *Define: Abstract estimate. (May/June 2007)*

    This is the third and final stage in a detailed estimate. The quantities and rates of each item of work, arrived in the first two stages, are now entered in an abstract form. The total cost of each item of work is now calculated by multiplying the quantities and respective rates.

Abstract of Estimate form:-

Item no.	Description or particulars	Quantity	Unit	Rate	Amount

8. *What do you mean by quantity survey?*

Quantity survey is a list or schedule of quantities of all the possible items of work required for construction of any building or structure. These quantities are worked from the plan and drawings of the structure. Thus the *quantity survey* indicates the quantities of work to be done under each item which when priced per unit gives the amount of cost. In short *quantity survey* means estimating of the quantities of different items of works.

9. *Define: Quantity surveyor*

A qualified or experienced person who does the above mentioned works (taking off, squaring, abstracting and billing is called a quality surveyor

10. *Write the duties of quantity surveyor. (Apr./May2011)*

➢ Preparing bill of quantities (Taking off, squaring, Abstracting and billing)

➢ Preparing bills for part payments at intervals during the execution of work.

➢ Preparing bill of adjustment in the case of variations ordered during the execution of work

➢ Giving legal advice in case of court proceedings.

11. *Write the essential qualities of a good surveyor.*

➢ The quality surveyor must be well versed with the drawings of work.

➢ He should be able to read the drawing correctly and bill the quantities accurately

➢ He should have a through knowledge of the construction procedure to be adopted, the various items of works involved in the execution: and the different materials to be used in the work.

➢ He should be able to prepare schedule to be priced by tender.

12. *Write the recommendation for degree of accuracy in measurements.*

➢ Dimensions of works shall be measured to an accuracy of 0.01 m

➢ Thickness of R.C works shall be measured to an accuracy of 0.0005 m

➢ Areas of works shall be calculated to the nearest 0.01 m^2

➢ Volumes of work shall be calculated to the nearest 0.01 m^3

➢ Volumes of wood shall be calculated to the nearest 0.001 m^3

13. *Define: Revised estimate. (Nov./Dec.2011)*

The estimate, which is prepared

- When any major change or alteration is made in the plan / structural arrangement, with or without affecting the estimate cost.

- When the estimated cost is likely to exceed by more than 5% during execution, due to increase in the cost of materials and labour or due to increase in the cost of materials and labour or due to alterations in the items of works to get the revised quantities /rates/ amount is called a revised estimate.

14. What are lintels? (May/June 2007)

Lintels are either of R.C.C or of R.B., quantities are calculated in cu m. Length of the lintel is equal to the clear span plus two bearings. If dimension of bearing is not given the Bearing may be taken as same as the thickness of lintel with a minimum of 12 cm.

15. Define: Supplementary estimate

Supplementary Estimate is a detailed estimate and is prepared when additional works are required to supplement the original works, or when further development is required during the progress of work. This is a fresh detailed estimate of the additional works in addition to the original estimate.

The Abstract should show the amount of the original estimate and the total amount including the Supplementary amount for which sanction is required.

16. Differentiated between revised estimate and supplementary estimate.(Apr./May 2008)

S.No.	Revised estimate	Supplementary estimate
1	When any major change or alteration is made in the plan / structural arrangement, with or without affecting the estimate cost	Supplementary Estimate is a detailed estimate and is prepared when additional works are required to supplement the original works, or when further development is required during the progress of work. This is a fresh detailed estimate of the additional works in addition to the original estimate.
2	When the estimated cost is likely to exceed by more than 5% during execution, due to increase in the cost of materials and labour or due to increase in the cost of materials and labour or due to alterations in the items of works to get the revised quantities rates amount is called a revised estimate.	The Abstract should show the amount of the original estimate and the total amount including the Supplementary amount for which sanction is required.

17. Define Floor area

It defined as covered area i.e plinth areas excluding area of walls (generally 10% -15 %) sills of the doors are not included in floor area. The floor area of very storey shall be   measured separately.

18. Define Carpet area (Nov./Dec.2011)

This means area in a building which is useful one i.e., area of drawing room, dining room bedroom etc. Areas of kitchens, staircase, stores, verandahs, entrance hall, bathroom, basement etc. are excluded. It is generally 50% to 60% of the plinth area.

19. *Define:* **Plinth area (Apr./May2011)**

It is defined area of a building measured at floor level. It is measured by taking external dimensions excluding plinth offset if any.

20. *Briefly explain about Out to Out and in to in method.* **(Apr./May2015)**

This method is most practicable under all circumstances and is generally followed in the P.W.D for computing the quantities of various items.

21. *Briefly explain about bay method.*

This method is useful and is generally followed in case of buildings having several bays. The cost of the typical bay is worked out and is then multiplied by the number of bays in that building. The extra cost for the end walls and difference in framing, if there is any, should be made, so as to arrive at the correct cost

22. *Define Arch. (Apr./May 2011)*

All old construction have their roofing of arches because R.C.C. work is not a very old invention. The radius of arch was dependent upon size of roof and the load to be taken by roof.

In the case of culvert the quantity of arch masonry work is equal to the length of arch face to face X mean length of arch X thickness of arch.

23. *Which is called as Lump-sum item?* **(Nov./Dec.2011)**

Sometimes a lump-sum rate is provided for certain small items for which detailed quantities cannot be taken out easily or it takes sufficient time to find the detail. as front architectural or decoration work of a building, fire-place, site cleaning and dressing, etc.

24. *What is Provisional sum?* **(Nov./Dec.2010)**

The amount paid to the contractor will not necessarily be the exact amount of 'Provisional sum' but will depend upon the arrangement made at the time of execution on the basis of full information then available.

The contractor should not alter the amount of 'Provisional sum' amount while tendering if he does, such alteration will not be valid and the original amount will stand.

25. *Define the term bill of Quantities.* **(Nov./Dec.2010)**

It is a statement of the various items of work giving the description, quantities and unit of rates. It is prepared in a tabular form similar to the 'Abstract of Estimated Cost' of the detailed estimate, but the rate and amount columns are left blank (unfilled). When priced, that is, the rates and the amounts are filled up and totaled, this gives the estimated cost. It is primarily meant for inviting tender, and supplied to the contractor to fill up the rates and amounts columns. On receipt of the tenders the rates and amounts are compared and decision about entrusting the work is finalized.

26. *Describe about Centre line Method.* **(Nov./Dec.2007, 2010)**

This method is suitable only if the offset are symmetrical and the building is more or less rectangular in shape. The centre line of the building is determined carefully after doing   deductions   for

repeated measurements (as explained in the next problem). This   centre line acts as length for the complete calculations of the estimate. If the deduction is   not cared for the results of estimates may be wrong. All the walls should have the same   section.

27. What are the units of measurement for the following items?

(Nov./Dec.2007, 2009, 2011), (Apr./May 2008)

Sl.no	Items	Units of Measurement
1	Damp proof course	Sq. m
2	Brick work	Cu.m
3	Partition wall in brick work	Sq. m
4	Steel Reinforcement in R.C.C. works	quintal
5	Weathering course	Sq. m
6	Plastering	Sq. m

28. Why sloping Roofs are preferred in hilly areas over slabs? (Apr./May 2008)

In hilly region there would be continuous rainfall and snowfall, so if flat roof is provided snow will be settle in the roof. Hence we have to take into account the snow load. Sloping roofs are preferred in hilly areas.

29. What is Bar-bending schedule? (Apr./May 2008)

The schedule of bars is a list of reinforcement bars in a tabular form giving the particulars of bars, shape of bending with sketches, length of each, total length and total weight. For each type of R.C.C. work a schedule of bars is usually prepared.

From the schedule of bars the requirement of different sizes and length of bars may be known, and may be arranged and bent-up during the time of construction.

PART – B

1. Explain various types of estimate. (or) Describe the different types of estimate. (Apr. /May 2008) (Nov./Dec. 2010, 2013). (Or) Briefly explain the different types of estimates discussing when each one is preferred. (Apr./May 2008).

Different Types of Estimates:

There are different types of estimates and they are as follows:

1. Preliminary, Approximate Or Rough Estimate:

This is an approximate estimate to find out an approximate cost in a short time and thus enables the authority concerned to consider the financial aspect of the scheme, for according sanction to the same. Such an estimate is framed after knowing the rate of similar works and from practical knowledge in various ways for various types of works such as:

1. Plinth area or square-meter method,

2. Cubic rate or cubic meter method,

3. Service until or until rate method,

4. Bay method,

5. Approximate quantities with bill method,

6. Cost comparison method,

7. The cost of materials and labor.

2. Detailed Estimates:

This includes the detailed particulars for the quantities, rates, and costs of all the items involved for satisfactory completion of a project.

Quantities of all items of work are calculated from their respective dimensions on the drawings on a measurement sheet. Multiplying these quantities by their respective rates in a separate sheet, the cost of all items of work are worked pout individually and then summarized, i.e. abstracted (which is the detailed actual estimated cost of work). All other expenses required for satisfactory completion of the project are added to the above cost to frame the total of a detailed estimate.

A detailed estimate is accompanied by

1. Report

2. Specifications

3. Detailed drawings showing plans, different sections, Key or Index plan etc.

4. Design data and calculations

5. The basis of rates adopted in the estimate.

Such a detailed estimate is prepared for technical sanction, administrative approval and also for the execution of a contract with the contractor.

3. Quantity Estimates or Quantity Survey:

This is a complete estimate or list of quantities for all items of work required to complete the concerned project. The quantity of each individual item of work is worked out from respective dimensions on the drawing of the structure. To find the cost of an item its quantity is multiplied by the rate per unit for that item. The purpose of the bill of quantities is to provide a complete list of quantities necessary for the completion of any engineering project and when priced gives the estimated cost of the project.

4. Annual Repair Estimate

In order to keep building and roads in perfect condition, annual repairs should be carried out as follow:-

(i) In case of a building-white washing, oiling and painting of doors and windows, cement plaster repairs (inside & outside), repairs of floors etc. In no case this annual repair amount should increase more that 11/2% to 2% of the capital cost of the building.

(ii) In case of a road-filling patches, maintenance of beams etc.

5. Special repair estimate

If the work cannot be carried out of the annual repair funds due to certain reasons resulting in the genuine increase in cost, then special repairs estimate is to be prepared. The reason of increase may be:-

(i) In case of a building-opening of new doors, change of floors, re-plastering walls etc.

(ii) In case of roads-if the whole surface is full of corrugation & patches, then the total surface is to be scarified. The old metal is taken out, consolidation by adding more metal is done and top surface is repainted.

6. Revised estimate

When the sanctioned estimate exceeds by 5% either due to the rate being found insufficient or due to some other reasons, a fresh estimate is prepared which is called a Revised Estimate. A comparative statement on the last page of the estimate is attached giving there in the reasons of the increase of cost in case of each item.

7. Supplementary Estimate

This is fresh detailed estimate in addition to the original sanctioned estimate prepared when additional works are deemed necessary during the progress of a work to supplement the original works. The abstract of cost should show the amount of the original sanctioned estimate as well as the supplementary amount of the original sanctioned estimate as well as the supplementary amount for which sanction is required.

2. **Explain the methods used to find the approximate cost of the building. (Nov./Dec.2013)**

Preliminary or **approximate construction cost estimation** is required for studies of various aspects of work of project and for its administrative approval. It can decide, in case of commercial projects, whether the net income earned justifies the amount invested or not.

The approximate estimate is prepared from the practical knowledge and cost of similar works. The estimate is accompanied by a report duly explaining necessity and utility of the project and with a site or layout plan. A percentage 5 to 10% is allowed for contingencies.

Approximate Construction Cost Estimation Methods:

The following are the methods used for preparation of approximate construction cost estimates:

a) Plinth area method

b) Cubical contents method

c) Unit base method

a) Plinth area method:

The cost of construction is determined by multiplying plinth area with plinth area rate. The area is obtained by multiplying length and breadth (outer dimensions of building). In fixing the plinth area rate, careful

observation and necessary enquiries are made in respect of quality and quantity aspect of materials and labour, type of foundation, height of building, roof, wood work, fixtures, number of storeys etc.

As per IS 3861-1966, the following areas include while calculating the plinth area of building:

Types of Estimates:

- Area of walls at floor level.
- Internal shafts of sanitary installations not exceeding 2.0 sqm, lifts, air-conditioning ducts etc.,
- Area of barsati at terrace level: Barsati means any covered space open on one side, constructed on one side, constructed on terraced roof which is used as shelter during rainy season.
- Porches of non-cantilever type.

Areas which are not to include

- Area of lofts.
- Unenclosed balconies.
- Architectural bands, cornices etc.,
- Domes, towers projecting above terrace level.
- Box louvers and vertical sun breakers.

b) Cubical Contents Method:

This method is generally used for multi-storeyed buildings. It is more accurate that the other two methods viz., plinth area method and unit base method. The cost of a structure is calculated approximately as the total cubical contents (Volume of buildings) multiplied by Local Cubic Rate. The volume of building is obtained by Length x breadth x depth or height. The length and breadth are measured out to out of walls excluding the plinth off set. The cost of string course, cornice, corbelling etc., is neglected.

The cost of building = volume of buildings x rate/ unit volume.

c) Unit Base Method:

According to this method the cost of structure is determined by multiplying the total number of units with unit rate of each item. In case schools and colleges, the unit considered to be as 'one student' and in case of hospital, the unit is 'one bed'. The unit rate is calculated by dividing the actual expenditure incurred or cost of similar building in the nearby locality by the number of units.

3. **Differentiate detailed estimate and cubic rate estimates. (Apr. /May 2008)**

Detailed Estimate	Cubic Rate Estimates
This includes the detailed particulars for the quantities, rates, and costs of all the items involved for satisfactory completion of a project.	This method is generally used for multi-storied buildings. It is more accurate that the other two methods viz., plinth area method and unit base

Quantities of all items of work are calculated from their respective dimensions on the drawings on a measurement sheet. All other expenses required for satisfactory completion of the project are added to the above cost to frame the total of a detailed estimate.	method. The cost of a structure is calculated approximately as the total cubical contents (Volume of buildings) multiplied by Local Cubic Rate. The volume of building is obtained by Length x breadth x depth or height.

4. Calculate the quantities of the following items from the given figure, 3.12 up to G.L., using Centre line method

1. Excavation for foundations.

2. Cement Concrete in foundations.

3. Brick work in cement mortar (1:4)

PLAN   **Fig. 3.12**
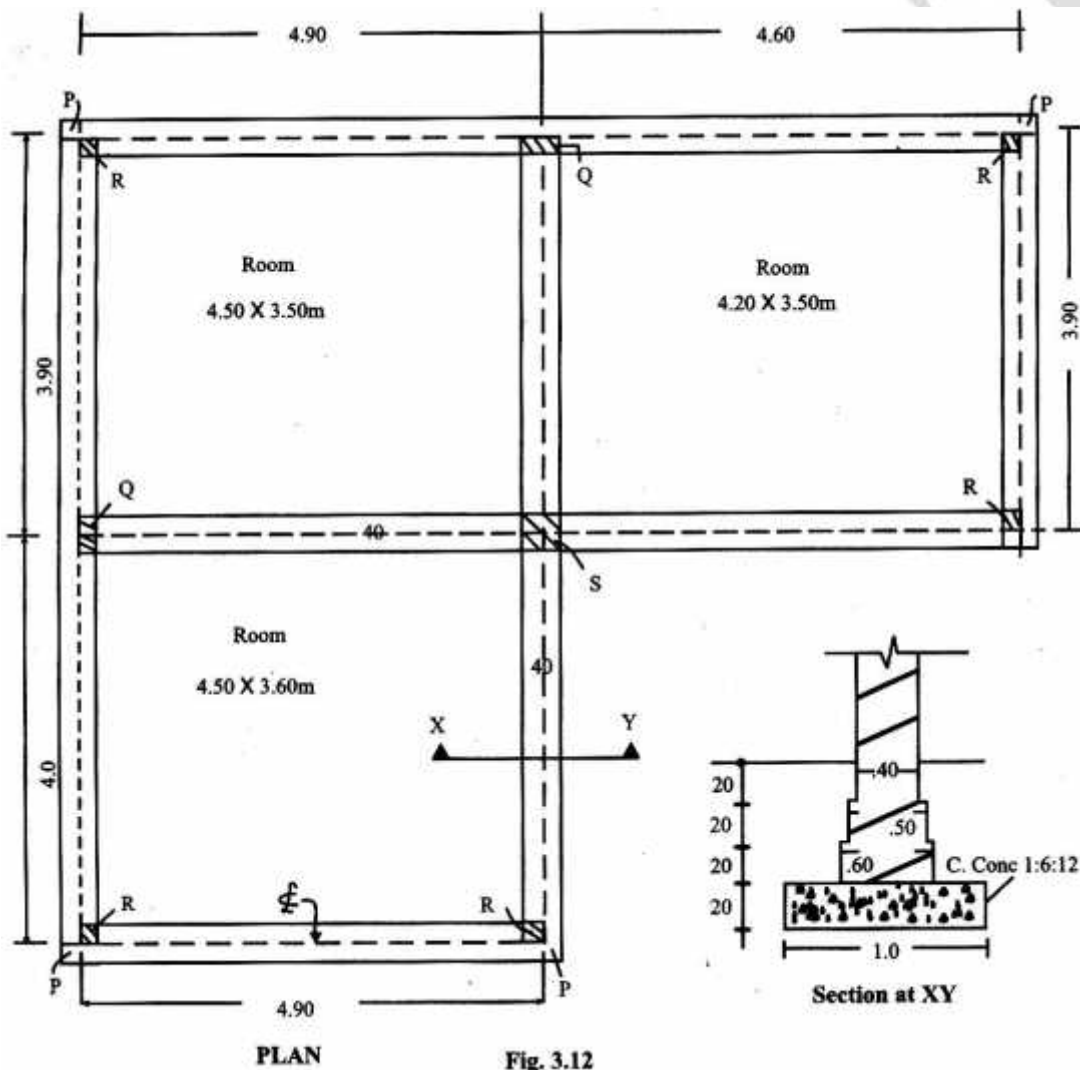
Solution:

        BY CENTRE LINE METHOD ESTIMATES

S.No.	Detail of Work	No.	Measurements			Quantity	Remarks
			L	B	H		
1.	Excavation for foundations	1	42.8	1.0	0.80	34.26	
2.	C. Concrete in foundation	1	42.8	1.0	0.20	8.56	
3.	Brick in Cement mortar step 1	1	42.8	060	0.20	5.13	
	Brick in Cement mortar step 2	1	42.8	0.50	0.20	4.28	
	Brick in Cement mortar step 3	1	42.8	0.40	0.20	3.42	
	Brick in Cement mortar total					12.83	

5. Prepare an approximate estimate of building project with total plinth area of all building is 800 sqm. and from following data.

   i) Plinth area rate Rs. 4500 per sqm

   ii) Cost of water supply @7½% of cost of building.

   iii) Cost of Sanitary and Electrical installations each @ 7½% of cost of building.

   iv) Cost of architectural features @1% of building cost.

   v) Cost of roads and lawns @5% of building cost.

   vi) Cost of P.S. and contingencies @4% of building cost.

   Determine the total cost of building project.

Solution:

Data given: Plinth area = $800m^2$ Plinth area rate = Rs. 4500 per Sq.m

Cost of building = 800 x 4500 = Rs. 36,00,000

Add the cost of the water supply charges @7½%

$$= \frac{36,00,000 \times 7.5}{100} = 2,70,000 = 00$$

Add the Cost of Sanitary and electrical installation @ 15%

$$= \frac{36,00,000 \times 15}{100} = 5,40,000 = 00$$

Add the cost of archetectural features @1%

$$= \frac{36,00,000 \times 1}{100} = 36,000 = 00$$

Add the cost of Roads Lawns @ 5% $= \frac{36,00,000 \times 5}{100} = 1,80,000 = 00$

Add the Cost of P.S. and contingencies @ 4%

$$= \frac{36,00,000 \times 4}{100} = 1,44,000 = 00$$

Total   Rs.   47,70,000=00
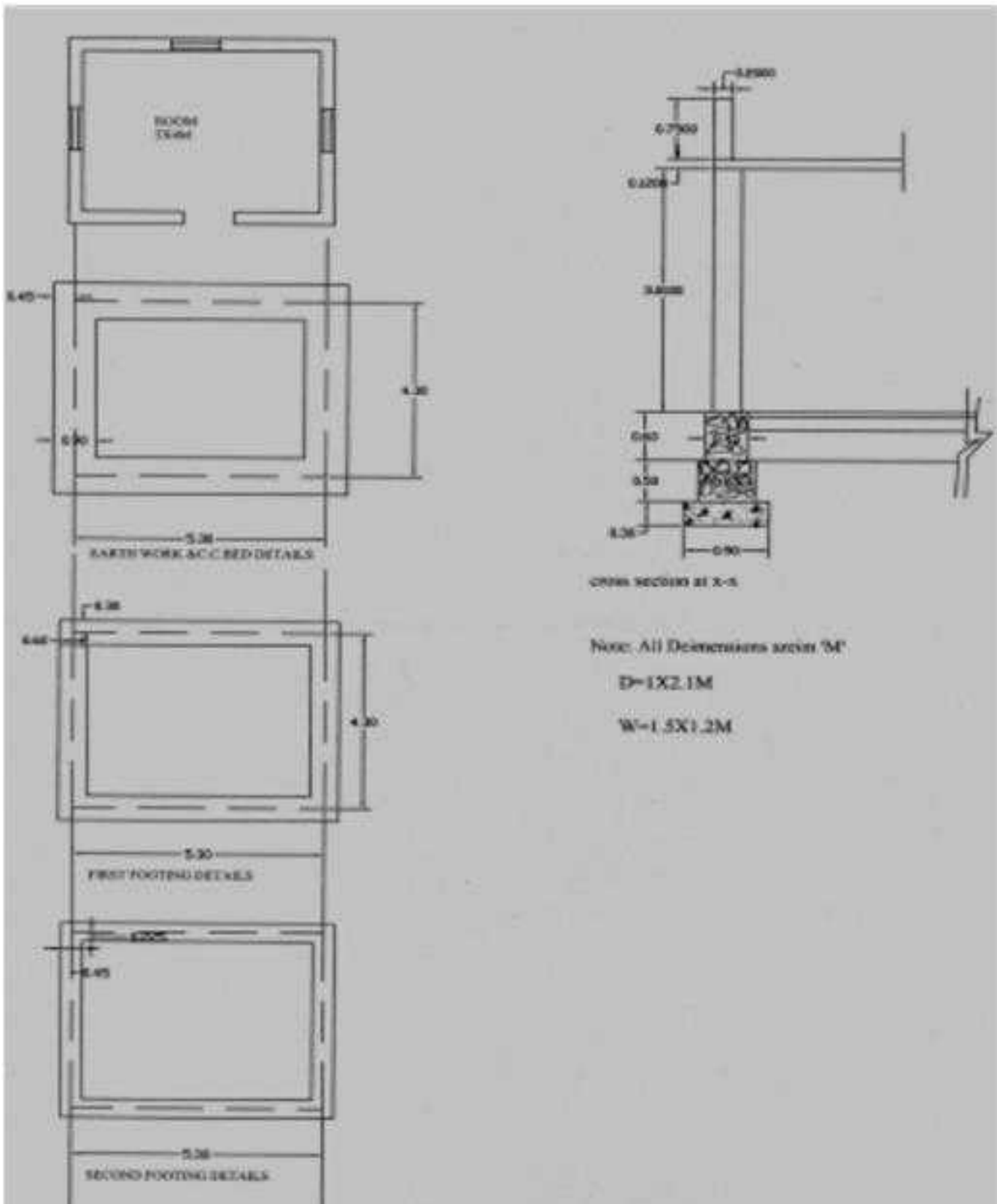
Assume Add supervision charges 8% on overall cost

$$= 47,70,000 \times \frac{8}{100} = 3,81,600 = 00$$
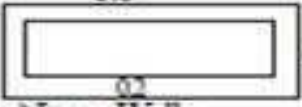
، 28,250

Grand Total Rs.   51,51,600=00

، 16,950

Total Cost Rs.   = 7,19,750.00

6. From the given figure below calculate the detailed and abstract estimate for the single roomed building (Load bearing type structure) by a) long wall & short wall method b) Centre Line Method

a) Long wall - Short Method

S No.	Particulars of Items	No	L	B	H	Q	Explanation
1.	**Earth Work excavation for foundation**						
	a) Long walls	2	6.2	0.9	1.4	15.264	L=5.3+.45+.45=6.2
							D=0.3+0.5+0.6=1.4
	b) Short walls	2	3.4	0.9	1.4	8.568	L=4.3-0.45-0.45=3.4
					Total	24.192	m³
2.	**C.C.(1:4:8) bed for foundation**						
	a) Long walls	2	6.2	0.9	0.3	3.348	
	b) Short walls	2	3.4	0.9	0.3	1.836	
					Total	5.184	m³
3.	**R.R.Masonry in CM (1:6) for**						
	a) Footings						
	i) Long walls	2	5.9	0.6	0.5	3.54	L=5.3+0.3+0.3=5.9
	ii) Short walls	2	3.7	0.6	0.5	2.22	L=4.3-0.3-0.3=3.7
					Total	5.76	m³
	b) Basement						
	i) Long walls	2	5.75	0.45	0.6	3.105	L=5.3+0.225+0.225=5.75
	ii) Short walls	2	3.85	0.45	0.6	2.079	L=4.3-0.225-0.225=3.85
					Total	5.184	m³
	Total R.R. Masonry for footings and Basement = 5.76+5.184 = 10.94 m³						
4.	**Brick masonary with CM (1:6) for super structure**						
	a) Long Walls	2	5.6	0.30	3.00	10.08	L=5.3+0.15+0.15=5.6
	b) Short walls	2	4.0	0.30	3.00	7.20	L=4.3-0.15-0.15=4.0
	c) for parapet wall						
	a) Long Walls	2	5.6	0.2	0.75	1.68	
	b) Short walls	2	4.4	0.2	0.75	1.32	
					Total	20.28	m³

Detail & Abstract Estimates of Buildings   24

S No.	Particulars of Items	No.	L	B	H	Q	Explanation
	Deductions for openings						
	a)Doors	1	1.0	0.3	2.1	0.63	
	b)Windows	3	1.5	0.3	1.2	1.62	
					Total	(-)2.25	m³
	Net Brick Masonry	= 20.28 - 2.25 =				18.03m³	
5.	R.C.C. (1:2:4) for						
	a)Roof slab	1	5.6	4.6	0.12	3.090	
	b) Lintels over						
	i) Doors	1	1.2	0.3	0.15	0.054	
	ii)Windows	3	1.5	0.3	0.15	0.202	
	c)Beams						
	i)Long beams	2	5.6	0.3	0.3	1.008	
	ii) short beams	2	4.0	0.3	0.3	0.720	
					Total	5.074	m³
6.	Sandfilling for basement	1	4.85	3.85	0.48	8.96	L=5.0-0.075-0.075=4.85
7	C.C.(1:4:8) for flooring	1	4.85	3.85	0.1	1.86	B=4.0-0.075-0.075=3.85
8	Flooring with Mosaic tiles	1	5.0	4.0	--	20.0	m²
9	Plastering with CM (1:6)for super structure						
	Inside						
	For walls	1	18.0	--	3.0	54.0	L=2(5.0+4.0)=18.0
	Out side						
	For walls	1	20.4	--	3.87	61.2	L=2(5.6+4.6)=20.4
	Basement outside	1	21.6	--	0.6	12.96	H=3.0+0.12+0.75=3.87
	Parapet wall						(upto parapet wall)
	a) Inside	1	18.8	--	0.75	14.1	
	b) top	1	19.6	0.2	---	3.92	
	Deductions for openings				Total	146.18	m²
	Doors	1x2	1.0	--	2.1	4.2	
	Windows	3x2	1.5	--	1.2	10.8	
						15.0	m²
	Net Plastering	= 146.18 - 15.0				= 131.18	m²

S.No.	Particulars of Items	No.	L	B	H	Q	Explanation
10	Plastering for Ceiling with CM(1:5)	1	5.0	4.0	--	20.0	m²
11	White Washing with two coats with Janatha cement						
	Same as quantity of plastering for walls and ceiling					151.18	(=131.18+20=151.18)
12.	Colour washing with two coats						
	Same as quantity of plastering for walls and ceiling					151.18	(=131.18+20)151.18)
13	Supply & Fixing of best country wood for						
	a) Doors	1				1 No.	
	b) Windows	3				3No.	
14	Painting with ready mixed synthetic enamil pairs with two coats over primary coat for new wood for						
	a) Doors	2½x1	1.0	---	2.1	4.725	
	b) Windows	2½x3	1.5	---	1.2	12.15	
					Total	16.875	m²
15	Petty supervision and contingencies at 4% and rounding off						

Detail & Abstract Estimates of Buildings   26

b) Centre Line Method

S.No.	Particulars of Items	No.	L	B	H	Q	Explanation
1.	Earth Work exevation for foundation	1	19.2	0.9	1.4	24.192	m³ L=2(5.3+4.3)=19.2
2.	C.C.(1:4:8) bed for foundation	1	19.2	0.9	0.3	5.184	m³
3.	R.R.Masonry in CM (1:6) for						
	a)Footings	1	19.2	0.6	0.5	5.76	
	b)Basement	1	19.2	0.45	0.6	5.184	
					Total	10.944	
4.	Brick masonry with CM (1:6) for super structure	1	19.2	0.3	3.0	17.28	m³
	For parapet wall	1	20.0	0.2	0.75	3.00	
	Deductions for openings						
	a)Doors	1	1.0	0.3	2.1	0.63	
	b)Windows	3	1.5	0.3	1.2	1.62	
					Total	(-)2.25	m³
	Net Brick Masony = 17.28 +3.0-2.25 =					18.03	m³
5.	R.C.C. (1:2:4) for						
	a)roof slab	1	5.6	4.6	0.12	3.090	
	b) Lintels over						
	i) Doors	1	1.2	0.3	0.15	0.054	
	ii)Windows	3	1.5	0.3	0.15	0.202	
	c)beams	1	19.2	1.3	0.3	1.728	
					Total	5.074	m³
6.	Sandfilling for basement	1	4.85	3.85	0.48	8.96	L=5.0-0.075-0.075=4.85
7	C.C.(1:4:8) for flooring	1	4.85	3.85	0.1	1.86	B=4.0-0.075-0.075=3.85

8.	flooring with Mosaic tiles	1	5.0	4.0	--	20.0	
9	Plastering with CM (1:6) for super structure						
	Inside						
	For walls	1	18.0	--	3.0	54.0	
	Out side						
	For walls	1	20.4	--	3.87	61.2	
	Basement outside	1	21.6	--	0.6	12.96	
	Parapet wall						
	a) Inside	1	18.8	--	0.75	14.1	
	b) top	1	19.6	0.2	---	3.92	
	Deductions for opeinings			Total	146.18	m²
	Doors	1x2	1.0	--	2.1	4.2	L=5.0-0.075-0.075=4.85
	Windows	3x2	1.5	--	1.2	10.8	B=4.0-0.075-0.075=3.85
						15.0	m²
	Net Plastering =	146.18-15	=			131.18	m²
10	Plastering for Ceiling with CM(1:5)	1	5.0	4.0	--	20.0	m²
11	White Washing with two coats with Janatha cement						
	Same as quantity of plastering for walls and ceiling					151.18	m² (131.18+20=151.18)
12.	Colour washing with two coats						
	Same as quantity of plastering for walls and ceiling					151.18	m²
13	Supply & Fixing of best country wood for						
	a) Doors	1				1 No.	
	b) Windows	3				3 No.	