CODE : 4013 VERSION C

QN. No.	SCORING INDICATORS	SPLIT SCORE	TOTAL SCORE
	PART-A		
I. 1	(1) Preliminary or Approximate estimate. (2) Rough cost estimate based on plinth area. (3) Rough cost estimate based on cubic contents. (4) Detailed estimate. (5) Annual repair estimate. (6) Special repair estimate. (7) Revised estimate (8) Supplementary estimate. (Any four)	2 2 2	
2	**Lead:** average horizontal distance between the centre of excavation to the centre of deposition. The unit of lead is 50m.	2	
	Lift : average height through which the earth has to be lifted from source to the place of spreading or heaping.	2	
3	$\frac{L}{2}[(A_1 + A_n) + 2(A_2 + A_3 + ... + A_{n-1})]$	2	10
4	Length=0.01m,area=0.01 sq.m,volume=0.01cum		
5	***Overhead charges:*** To meet expenses of office rent, depreciation of equipment salaries of staff postage- amount of 4% of estimate cost is allocated.		
	PART-B		
II) 1	In order to keep building and roads in perfect condition, annual repairs carried out . (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 berms etc. ***Supplementary Estimate*** This is fresh detailed estimate in addition to the original sanctioned estimate - prepared for additional works to supplement the original works. - The abstact of cost 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.	6	6

3

2	$A = bd + nd^2$ $A_1 = bd1 + nd_1^2 = 10x\ 1.25 + 2x\ 1.252 = 15.625\ m^2$ $A_2 = bd2 + nd_2^2 = 10x\ 1.10 + 2x\ 1.10^2 = 13.42 m^2$ $A_3 = 10x\ 1.15 + 2.1.15^2 = 14.145 m^2$ $A_4 = 10x\ 1.2 + 2x1.2^2 = 14.88 m^2$ $A_5 = 10x\ 1.0 + 2x1^2 = 12.0 m^2$, $A_6 = 10\ x\ 1.1 + 2x1.1^2 = 13.42 m^2$ $A_7 = 10x1.15 + 2x1.152 = 14.145\ m^2$ **By Prismoidal rule** $v = \frac{L}{3}[(A_1 + A_n) + 4(\text{even Areas}) + 2(\text{Odd Areas})]$ $= \frac{L}{3}[(A_1 + A_7) + 4(A_2 + A_4 + A_6) + 2(A_3 + A_5)]$ $= \frac{50}{3}[(15.625 + 14.145) + 4(13.42 + 14.88 + 13.42) + 2(14.145 + 12)]$ $= 4149\ m^3$	3 3	6
3	***Centre line method*** -suitable only if the offsets are symmetrical and the building is more or less rectangular in shape. -The centre line of the building determined carefully after doing deductions for repeated measurements . -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. ***Long wall-short wall method:*** -the wall along the length of room is considered to be long wall while the wall perpendicular to long wall is short wall. To get the length of long wall or short wall, calculate first the centre line lengths of individual walls. -length of long wall, (out to out) - adding half breadth at each end to its centre line length. -length of short wall measured into in - deducting half breadth from its centre line length at each end.	3 3	6

4

4 Quantity of earth work in embankment=$(Bd+sd^2)xL$=

$=(10x1.5)+2x1.5\ ^2x1000$

$= 19500\ m^3$

Area of temporary land $= 19500/0.30$ — 2

$= 65000\ m^2$

Width of temporary land = Area/length

$= 65000/1000$ — 1

$= 65m$

On either side $= 65/2$

$= 32.5m$ — 6

5 Rates of particular item of work depend on the following. — 2

1. Specifications of works and material about their quality, proportion and constructional operation method.
2. Quantity of materials and their costs.
3. Cost of labours and their wages. — 1
4. Location of site of work and the distances from source and conveyance charges. — 6
5. Overhead and establishment charges
6. Profit — 1x6 — 6

6

Sl.No.	description of work	No.	length in m	Breadth in m	Heigh/depth in m	Quantity
1	R.C.C work					
	floor	1	4.3	2.8	0.2	2.408
	walls	1	11.8	0.2	3	7.080
	haunch	1	9.8(1/2*0.3*0.3)			0.441
					total	9.929 m^3

2 — 2 — 2 — 6

7 The distance between the source of availability of material and construction site is expected in Km.

The cost of convenayce of material depends on lead.

This statement will give the total cost of materials per unit item.

It includes first cost, convenayce loading, unloading stacking, charges etc.

Form of conveyance statement

S.No.	Materials	Cost at Source Rs. -- Ps.	Per	Lead in Km	Conveyance Charges per km

6

PART-C

III) a)

Plinth area = 800m².

Plinth area rate = Rs. 4500 per Sqm.

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

Add the cost of the water supply charges @7½% 1

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

Add the Cost of Sanitary and electrical installation @ 15% 1

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

Add the cost of archetectural features @1% 1

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

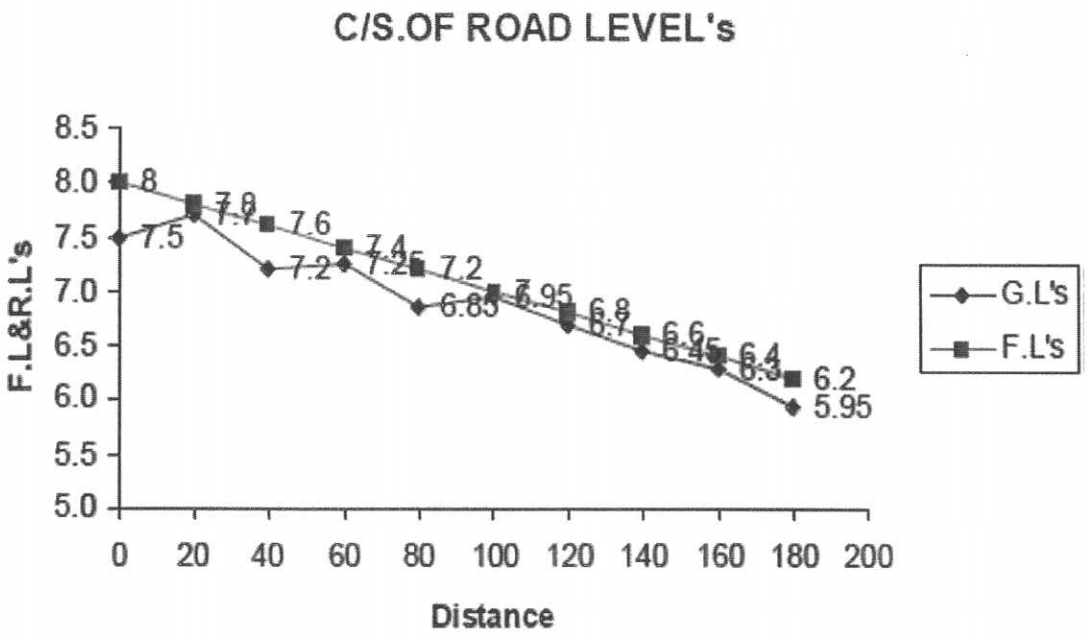
Add the cost of Roads Lawns @ 5%= $\frac{36,00,000 \times 5}{100} = 1,80,000 = 00$ 1

Add the Cost of P.S. and contingencies @ 4% 1

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

Total Rs. 47,70,000=00 1

b) 2



8

6

b=12m n=5

Chainage	Distance	Reduced level	Formation Level	Depth(d) of		Area of	
				Embank-ment	Cutting	Embank-ment $bd+nd^2$	Cutting
0	0	7.50	8.0	0.50		6.375	
1	20	7.70	7.8	0.10		1.275	
2	40	7.50	7.6	0.10		1.215	
3	60	7.25	7.4	0.15		1.839	
4	80	6.85	7.2	0.35		4.38	
5	100	6.95	7.0	0.05		0.63	
6	120	6.70	6.8	0.10		1.215	
7	140	6.45	6.6	015		1.837	
8	160	6.30	6.4	0.10		1.215	
9	180	5.95	6.2	0.25		3.09	

5

Trepezoidal formula :

$$V= L\left[\left(\frac{A_1+A_n}{2}\right)+(A_2+A_3+....+A_{n-1})\right]$$

1

$$=20\left[\left(\frac{6.375+3.09}{2}\right)+(1.215+1.215+1.837+4.38+0.63+1.215+1.837+1.215\right]$$

$= 365.53m^3$

1

a)

iv)

Cubical content = No.of storeys (Plinth Area x height of each storey)

$= 3(500x3.5) = 5250m^3$

7

Structural cost = Cubical content x cubical content rate

= 5250 x 1000 = 52.5 Lakhs

1

1

a) Water supply and sanitation = 52.5x8/100 = Rs.4.2 Lakhs

1

b) Electrification = 52.5 x 6/100 = Rs.3.15 lakhs

1

Total = Rs.7.35lakhs

1

Structural cost = Rs. 52.500 Lakhs

1

Total = Rs. 58.850 Lakhs

1

Add contractors profit = Rs. 5.885 Lakhs

1

Total cost = Rs. 64.735 Lakhs

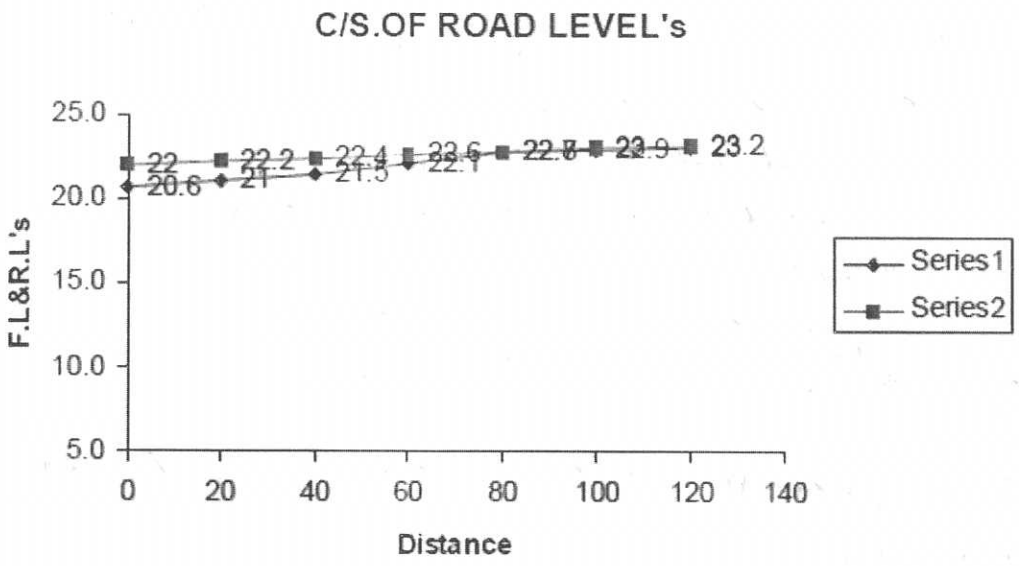
8

1

7

iv)

b)



Chainage Distance	Reduced level	Formation Level	Depth (d)of		Area of	
			Embank-ment	Cut-ting	Embank-ment	Cutting
0	20.6	22.0	1.40		19.74	
20	21.0	22.2	1.20		16.56	
40	21.5	22.4	0.90		12.01	
60	22.1	22.6	0.50		6.375	
80	22.7	22.8	0.10		1.215	
100	22.9	23.0	0.10		1.215	
120	23.0	23.2	0.20		2.460	

Prismoidal formula

$$V = \frac{L}{3}[(A_1+A_n)+4(\text{even Areas})+2(\text{Odd Areas})]$$

$$= \frac{20}{3}[(19.74+2.46)+4(16.56+6.325+1.2+5)+2(12.01+1.215)]$$

$$= 968.33m^3$$

7

8

v) a) P.C.C

Sl No.	Description of Item	NO	L m	B m	H/D m	Qty.		
1.	Wall all room's	1	35.00	0.80	0.15			
	" bet. M Hall & bed	1	3.60	0.80	0.15		3	
	" " bed & Kitchen	1	2.40	0.80	0.15			
	" " bed & Dining	1	5.90	0.80	0.15		3	
	" " Dining & Toilet	1	1.20	0.80	0.15			
	" " Toilet & Toilet	1	3.00	0.80	0.15		1	
	Any centre line							
	Total length							
	$54.70 - \frac{1}{2} \times 9 \times 0.80$	1	51.10	0.80	0.15	$6.132\ m^3$		7
(b)	Brick work							
	Wall all room's	1	35.00	0.20	3.00			
	" between Hall & bed	1	4.00	0.20	3.00			
	" bed & kitchen	1	6.5	0.20	3.00			
	" " bed & Dining	1	3.00	0.20	3.00			
	" " Dining & Toil	1	3.60	0.20	3.00			
	" " Toilets	1	1.80	0.20	3.00			
	Any centre line							
	$54.70 - \frac{1}{2} \times 9 \times 0.20$	1	53.80	0.20	3.00	$32.28\ m^3$	4	
	Deduction							
	Doors D.	2	1.10	0.20	2.10	0.924		
	D2	2	1.00	0.20	2.10	0.840		
	D3	2	0.90	0.20	2.10	0.756		
	Windows W1	5	1.50	0.20	1.50	2.250		
	W2	1	1.50	0.20	1.00	0.300		
	Ventilator V	1	1.00	0.20	0.50	0.100		
	Lintel	1	51.10	0.20	0.15	1.533		
						$6.703\ m^3$	3	
				Net Qty		$25.477\ m^3$	1	8

Code : Version:

Qn. No.	Scoring Indicators	Split score	Total score

VII a) Continuing

Sl No	Description of work	No.	L in m	B in m	H/D in m	Qty	Split score	Total score
	Cont d. ...							
	Parapet wall External	1	(10.90+7.40)2		0.72	26.35		
	" Internal	1	(10.70+7.20)2		0.60	15.06		
	" Top	1	(10.80+7.30)2		0.10	3.62		
					Total	363.63 m²	3	
	Deduction							
	Doors D1	2	1.10	2.10		4.62		
	D2	2	1.00	2.10		4.20		
	D3	2	0.90	2.10		3.72		
	Windows W1	5	1.50	1.50		11.25		
	W2	1	1.50	1.50		1.50		
	V	1	1.00	0.50		0.50		
						25.79 m²		
					Net	337.84 m²	3	9
VII	VIII (b) i) Stone grit	1	2000	x 3.70	x 1.35 / 100	100 m³	3	
	ii) Binding Iron	1	2000	x 3.70	200 / 100	14800 kg	3	6
VIII	(a) Roof work for Shelter							
	Doors D1	2	0.908	~~2.057~~	2.052	4.03 m²		
	D2	2	0.88	—	2.057	3.62 m²		
	D3	2	0.78	—	2.057	3.21	4	
						6.83 m²		
	Windows W1	5	1.29	—	1.38	8.90		
	W2	1	1.29	—	0.88	1.14	4	8
					Total	20.04 m²		
	(b) Brick work for well	1	(11×2.30)	0.30	14.60	31.63 m³	7	7
					Total	31.63 m³		

10 **Scoring Indicators** 9.

Code : **Version:**

Qn. No.	Scoring Indicators						Split score	Total score
VI	a) RR masonry							
	Sl No	Description of work	No	L m cm	B m cm	H/D m cm	Qty.	
	1.	RR masonry to foundation						
		Wall bet^n all round	1	35.00	0.60	0.60		
		" bet^n Hall & bed	1	3.80	0.60	0.60		
		" " bed & kitchen	1	6.10	0.60	0.60		
		" " bed & Dining	1	2.60	0.60	0.60		
		" " Dining & Toilet	1	3.20	0.60	0.60		
		" " Toilet	1	1.40	0.60	0.60		
		By centre line method						
		54.70 - ($\frac{1}{2}$ x 9 x 0.60)	1	52.10	0.60	0.60	18.79 m^3	3	
		Basement						
		Wall all round	1	35.00	0.45	0.45		
		" bet^n Hall & bed	1	3.95	0.45	0.45		
		" bed & Kitchen	1	6.25	0.45	0.45		
		" bed & Dining	1	2.75	0.45	0.45		
		" Dining & Toilet	1	3.15	0.45	0.45		
		" " Toilet	1	1.55	0.45	0.45		
		By centre line method						
		54.70 - ($\frac{1}{2}$ x 9 x 0.45)	1	52.68	0.45	0.45	10.67 m^3	3	7
						Total	29.46 m^3	1	
	(b)	Roof Slab						
		op. to Hall	1	10.90	4.00	0.12	5.232	2	
		Beyond Hall	1	7.10	2.70	0.12	2.300	2	
		Lintel	1	51.10	0.20	0.15	1.533	2	
						Total	9.065 m^3	2	8
VII	a)	Internal plastering						
		Hall	1	(3.60 + 4.00) 2		3.00	46.80		
		Room	1	(3.60 + 3.00) 2		3.00	39.60		
		Kitchen	1	(2.70 + 3.00) 2		3.00	34.20		
		Dining	1	(4.50 + 3.60) 2		3.00	48.60		
		Toilet	2	(1.80 + 1.70) 2		3.00	42.00	3	
		External plastering							
		Wall all round	1	(10.70 + 7.20) 2		3.00	107.40		

Code : Version:

Qn. No.	Scoring Indicators	Split score	Total score
X (a)	Contd.. Abstract & Estimate form	3	

Item No	Description	Qty	Unit	Rate	Amount

3 6

X (b) Materials

40 mm aggregate 0.92 m^3 × 700/m^3 = 644.00 1

Cement 0.115 Cum @ Rs 8000/ton = 1328.00 1

Sand 0.46 Cum @ Rs 1000/m^3 = 460.00 1

Labour

Manpon @ 8.20 @ 850/h/day = 170.00 1

Men 1.80 @ 750/h/day = 1350.00 1

Woman 1.40 @ 700/h/day = 980.00 1

Add conveyance

40 mm aggregate 0.92 × 12 × 12 = 132.48 1

Sand 0.46 × 14 × 15 = 96.60 1

Add CP 6% Nil = 516.08 1

516.0

~~Say Rs 5162/m~~ 5677.68

Say Rs 5678/m^3 9

Scoring Indicators

Code :

Version:

Qn. No.	Scoring Indicators	Split score	Total score
IX	a) i) Standard Data book - prepared by Govt. agencies - includes requirement & analysis - Includes rates of different items, formwork. - Used for the preparation of rates	2	
	ii) - It is a list of rates of different items of work - Serves as a guide for setting rates	2	
	iii) Cost of material at site is calculated by adding Conveyance charge to Cost at source.	2	6
	b) Materials		
	Stone 1.25 m^3 @ 700/m^3 = 875.00	1	
	Cement 105 kg @ 8000/ton = 840.00	1	
	Sand 0.42 m^3 @ 1200/m^3 = 504.00	1	
	Labour		
	Mason 1.3 @ Rs 850/head/day = 1105.00	1	
	Men 1.40 @ Rs 750/head/day = 1050.00	1	
	Women 1.40 @ Rs 700/head/day = 980.00	1	
	Add Conveyance charge		
	Stone 1.25 x 18 x 12 = 270.00	1	
	Total 5624.00		
	Add CP & O/H 562.00	1	
	6186.00	1	9
	Say 6190/m^3		
X	a) Abstract Estimate - It is a statement of various items of work giving the description, quantities and costs of rates. - It is prepared in a tabular form. - The cost under each item of work is calculated from the quantities already computed at a workable rate - Total cost is worked out in a prescribed form. Abstract & Estimate form		