SCHEME OF VALUATION

(Scoring Indicators)

	Revision :2015 Course Title: QUANTITY SURVEYIN-I **SET -A**			Course Code: **4013**	
QN. NO.		Scoring indicator	Split-up score	Sub Total	Total
I		**PART –A**			
	1	In an estimate a certain amount say 3% to 5% of estimated cost is provided to allow for the expenses for miscellaneous petty items which do not fall under any sub-head of items of works is called Contingencies.	2		
	2	i)Centre line method ii)Out to Out and in to in method	2	-	
	3	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 details.eg. Decoration work of a building.	2	-	
	4	The estimate which prepared using any rough method to get the approximate cost of construction anticipated in a project is called an approximate or rough estimate. Since this estimate is normally prepared in the preliminary estimate.	2		
	5	Rates of different items in the estimate are the current rates for the completion of the items of work which include supply of materials, transport, labour scaffolding, overheads, contractor's profit, taxes etc. The rates are usually taken from the PWD 'Schedule of Rates'.	2	-	2 x 5 = 10
II		**PART - B**			
	1	**Data required to prepare an estimate** 1. Drawings i.e. plans, elevations, sections etc. 2. Specifications. 3. Rates. **1. Drawings: -** If the drawings are not clear and without complete dimensions the preparation of estimation become very difficult. So, it is very essential before preparing an estimate **2. specifications:-** a) **General Specifications**: This gives the nature, quality, class and work and materials in general terms to be used in various parts of wok. It helps no form a general idea of building. b) **Detailed Specifications**: These gives the detailed description of the various items of work laying down the Quantities and qualities of materials, their proportions, the method of preparation workmanship and execution of work. **3. Rates: -** For preparing the estimate the unit rates of each item of work are required. 1. for arriving at the unit rates of each item. 2. The rates of various materials to be used in the construction. 3. The cost of transport materials.	2 2 2		6

		4. The wages of labour, skilled or unskilled of masons, carpenters etc.,			
	2	Quantity of brickwork = Lx B x H = 5.50m x 3m x 0.30m = 4.95 cu.m Quantity of plastering (two faces) = 2 (L X H) = 2 (5.50 X 3) = 33 sq.m Cost of Brickwork = 4.95 x 520.00 = Rs. 2574.00 Cost of plastering = 33 x 12.50 m = Rs. 412.50 Total cost = Rs. 2574.00 + Rs. 412.50 = **Rs. 2986.50/-**	2 2 2		6
	3	1. Preparing bill of quantities (taking off, squaring, abstracting and billing) 2. Preparing bills for part payments at intervals during the execution of work. 3. Preparing bill of adjustment in the case of variations ordered during the execution of work. 4. Giving legal advice in case of court proceedings.			6
	4	**Plinth Area** is the area of a building measured at floor level. It is measured by taking external dimensions excluding plinth offset if any. **Carpet Area** of building is the useful area or liveable area. This is the total floor area minus the circulation area, veranda, corridors, passages, staircase, lift, entrance hall etc. and minus other non-useable areas as sanitary accommodations like bathrooms and W.Cs.etc.	3 3		6
	5	**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.	3 3		6
	6	The **Cubical contents** of a building means plinth area x height of the building. The height is taken from top of floor level to top of roof. The cubic contents of the proposed building are multiplied with cubic rates arrived at for the similar construction i.e. total cost of construction divided by cubic contents = cost per cubic metre.			6
	7	**Overhead costs** include general office expenses, rents, taxes, supervision and other costs which are indirect expenses and not productive expenses on the job. The miscellaneous expenses on overheads may be under the following heads. 1. General overheads 1. Establishment (office staff) 2. Stationary, printing, postages etc. 3. Travelling expenses 4. Telephone 5. Rent and Taxes. 2. Job overheads 1. Supervision (salary of Engineers, Overseers etc.)	3		

		2. Handling of materials 3. Repairs, carriage and depreciation of Tools and Plants 4. Amenities of labour 5. Workmen's compensation, insurance etc. 6. Interest on investment 7. Losses on advances.	3		6
III		**PART – C**			
	(a)	Built-up area or Plinth area = Carpet area + area occupied by corridors (verandas, lavatories, staircases etc.) + area occupied by walls. Let X = Built-up area / Plinth area. X = carpet area + 30 % of built-up area + 10 % of built-up area $X = 2000\ m^2 + 30/100(X) + 10/100\ (X)$ $X = 2000 + 3X/10 + X/10$ $10X - 3X - X = 20000$ $6X=20000$; $X = 3333\ ^1/_3\ m^2$, Built-up area / Plinth area i)Building cost = $3333\ ^1/_3\ m^2$ @Rs. 950.00 / m^2 $= 3333\ ^1/_3$ x 950 = Rs. 316666.50 ii)Extra for deep foundation = $^1/_{100}$ x 3166663.50= Rs.31666.65 iii)Special Architectural treatment= $^{0.5}/_{100}$ x 3166663.50 = Rs.15833.32 iv)Water supply and sanitary installations = $^6/_{100}$x 3166663.50 = Rs. 189999.81 v)Electric installations – $^{12.5}/_{100}$ x 3166663.50 = Rs. 395832.93 vi)Other services – 5/100 x 3166663.50 = Rs.158333.17 Total = Rs.3958328.22/- Contingencies = 2 ½% of total = 2.5/100 x 3958328.88 = Rs.98958.22/- Supervision charges = 8% of total = 8/100 x 3958328.88 = Rs. 316666.30/- **Grand total = Rs. 43,73,953.00/-**	3 2 2 2		9
	(b)	**Revised estimate** is a detailed estimate and is required to be prepared under any one of the following circumstances. (i) When the original sanctioned estimate is exceeded or likely to exceed by more than 5 % (ii) When the expenditure on a work exceeds or likely to exceed the amount of administrative sanction by more than 10 % (iii) When there are material deviations from the original proposal, even though the cost may be met from the sanctioned amount. The revised estimate should be accompanied by a comparative statement showing the variations of each item of works, its quantity, rate and cost under original and revised, side by side, the excess or saving and reason for variation.	<u>3</u> <u>3</u>		<u>6</u>
IV	(a)	Quantity = $^L/_6$ ($A_1 + A_2 + 4\ A_m$) Or Quantity = $[B\frac{(d1+d2)}{2} + S\frac{(d1^2+d2^2+d1d2)}{3}]\ L$ $A_1 = Bd_1 + sd_1^2 = 10x1 + 2x12 = 12$ sq.m $A_2 = Bd_2 + sd_2^2 = 10 x1.60 + 2 x\ 1.602 = 21.12$ sqm	<u>2</u> <u>2</u>		

		Am = $Bd_m + sd_m^2$, where $d_m = \frac{d_1+d_2}{2} = \frac{1.00+1.60}{2} = 1.30$ m. $= 10 \times 1.30 + 2 \times 1.30^2 = 16.38$ sq.m Quantity = $^{200}/_{6}$ (12 +21.12 + 4 x 16.38) = $^{200}/_{6}$ x 98.64 = **3288 cu m.**	2 2		8
	(b)	Volume by Trapezoidal Formula method ,V $V = {}^{D}/_{2} [A_0+A_n+2(A_1+A_2+A_3+---+A_{n-1}]$ $= ½ [528 + 3100 + 2 (910 + 1500 + 1750 + 2100 + 2800)]$ **= 10,874 m^3**	2 3 2		7
V					

Item no	Particulars of items	No	L m	B m	H/D m	QTY m^3
1.	**Earthwork in excavation**					
	Long walls	2	11.70	1.10	1.00	25.74
	Short walls	3	5.20	1.10	1.00	17.16
	Total					**42.90**
2.	**Lime concrete in foundation**					
	Long walls	2	11.70	1.10	0.30	7.72
	Short walls	3	5.20	1.10	0.30	5.15
	Total					**12.87**
3.	**1st class Brickwork in Lime mortar in Superstructure**					
	Long walls	2	10.90	0.30	4.20	27.47
	Short walls	3	6.00	0.30	4.20	22.68
	Total (Excluding Deductions)					**50.15**

	5			
	5			
	5			15

Long wall c/c length =10.60 m; Short wall c/c length = 6.30m.

VI

For all footings, c/c length of long wall =7.50 m
c/c length of short wall = 5.50m

Item No.	Particulars of Item	No.	L m	B m	H/D m	QTY m^3
1	**Earth work in excavation**					
	Long wall	2	8.50	1.00	1.95	33.15
	Short wall	2	4.50	1.00	1.95	17.55
	Central portion (inside)	1	6.50	4.50	1.25	36.56
	Total					**87.26**
2.	Lime Concrete in foundation & floor					
	Long wall	2	8.50	1.00	0.30	5.10
	Short wall	2	4.50	1.00	0.30	2.70

	5		

			Under CC floor	1	7.00	5.00	0.20	7.00			
			Total					**14.80**	5		
			3. **5 cm CC floor 1:1$^1/_2$:3**	1	7.00	5.00	--	**35.00 m^2**	5		15
VII	(a)		**Item no**	**Particulars of item**	**No**	**L m**	**B m**	**H/D**	**QTY m^2**			
			1.	**Damp Proof Course 2.5 cm thick CC**							
				Long walls	2	11.00	0.40	-	8.80		
				Short walls	3	5.90	0.40	-	7.08		
				Total					**15.88**	3	
				Deduct Door sills	2	1.20	0.40	-	0.96	3	
				Net Total					**14.92**	3	9
	(b)	Quantity of cement concrete = 1 x 1000 x 3.70 x 0.08 = 296 cu m Cost per kilometer of road = 296 x 375.00 = **Rs. 1,11,000.00/-**								3 3	6
VIII	(i)		**Item no**	**Particulars of item**	**No**	**L m**	**B**	**H/D m**	**QTY m^2**		
			1.	**12 mm Cement plaster 1:2 with coarse sand inside**							
				Long walls	2	7.00	-	2.50	35.00	3	
				Short walls	2	5.00	-	2.50	25.00		
				Total					**60.00**	3	6
	(ii)		**Item no**	**Particulars of item**	**No**	**L m**	**B m**	**H/D m**	**QTY m^2**		
			1.	**12 mm Cement plaster 1:4 with local sand outside**							
				40 cm walls							
				Long walls	2	7.80	-	1.25	19.50		
				Short walls	2	5.80	-	1.25	14.50	3	
				30 cm wall							
				Long walls	2	7.60	-	0.60	9.12		
				Short walls	2	5.60	-	0.60	6.72	3	
				On top of wall							
				Long walls	2	7.60	0.30	-	4.56		
				Short walls	2	5.00	0.30	-	3.00		
				Total					**57.40**	3	9

IX

PARTICULARS	QUANTITY	UNIT	RATE	PER	COST			
(i) Materials								
Stone (undressed)	12.5	Cu m	2500.00	Cu m	31,250.00			
Cement (10 ½ bags)	0.35	Cu m	3970.00	Cu m	1389.50			
Sand (local)	2.10	Cu m	2000.00	Cu m	4200.00			
Total					**36,839.50**	5		
(ii) Labour								
Mistri (Head mason)	½	No	950.00	Day	475.00			
Mason including cutter	28	Nos	850.00	Day	23,800.00			
Mazdoor (Beldar)	20	Nos	700.00	Day	14,000.00			
Boy or Woman coolie	20	Nos	650.00	Day	13,000.00			
Bhishti	1 ½	Nos	500.00	Day	750.00			
Scaffolding	LS		250.00	LS	250.00			
Sundries (Tools & Plants)etc.	LS		100.00	LS	100.00			
Total					**52,375.00**	5		
Total of (i) + (ii)					**89,214.50**			
Add 10 % Contractor's Profit					**8921.45**			
Grand Total					**98,135.95/ cu m.**	5		15

9813.5/m³

X

ITEM	QUANTITY	UNIT	RATE	PER	COST			
(i) Materials								
Bricks	500	Nos	3500.00	1000	1750.00			
Cement	43	kg	350.00	Bag	301.00			
Dry sand	0.24	Cu m	2500.00	Cu m	600.00			
Total					**2651.00**	5		
(ii) Labour								
Brick Mason	0.7	Each	750.00	Day	525.00			
Man	0.35	Each	600.00	Day	210.00			
Woman	1.20	Each	500.00	Day	600.00			
Total					**1335.00**	5		
(iii) Conveyance	Distance	Km	Rate	Km				
Cement	15	Km	50.00	km	750.00			
Sand	27	Km	15.00	Km	405.00			
Brick	20	km	20.00	Km	400.00			
Total					**1555.00**			

		Total of (i) + (ii) + (iii)		5541.00			
		Add 10 % Contractor's Profit		554.10			
		Grand Total		6095.10 / cu m.	5		15