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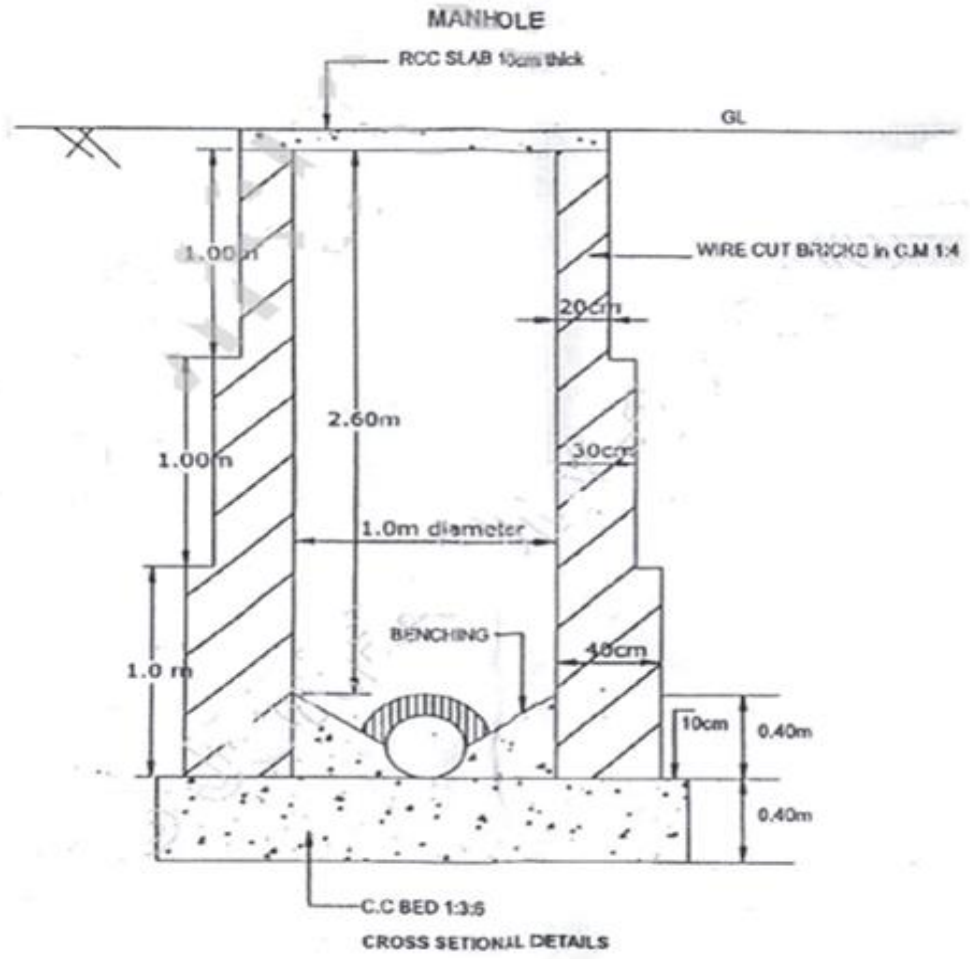
CMR
INSTITUTE
OF TECHNOLOGY

Department of Civil Engineering

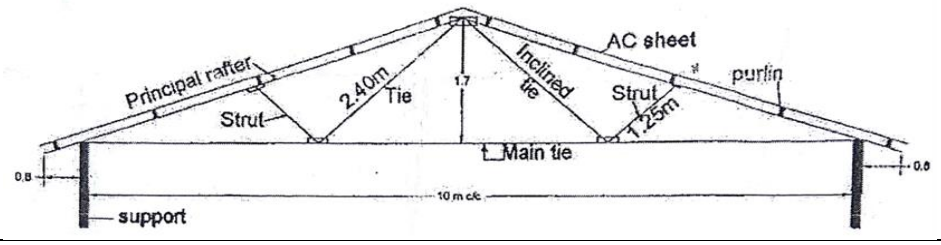
17CV81 - Quantity Survey and Contracts Management

Scheme and Solution-IAT3-ACADEMIC YEAR 2020-21(EVEN)

Q.No.	Question	M	CO	RBL
1.	The details of a circular man hole are given in fig. Find the quantities of the following items. 1.Earthwork in excavation 2.CC bed 1:3:6 3.B.B.M in CM 1:4 for walls 4.R.C.C. slab in CC 1:2:4, with 45cm manhole cover 5.Plastering in CM 1:3 for side walls 	20	CO1	5

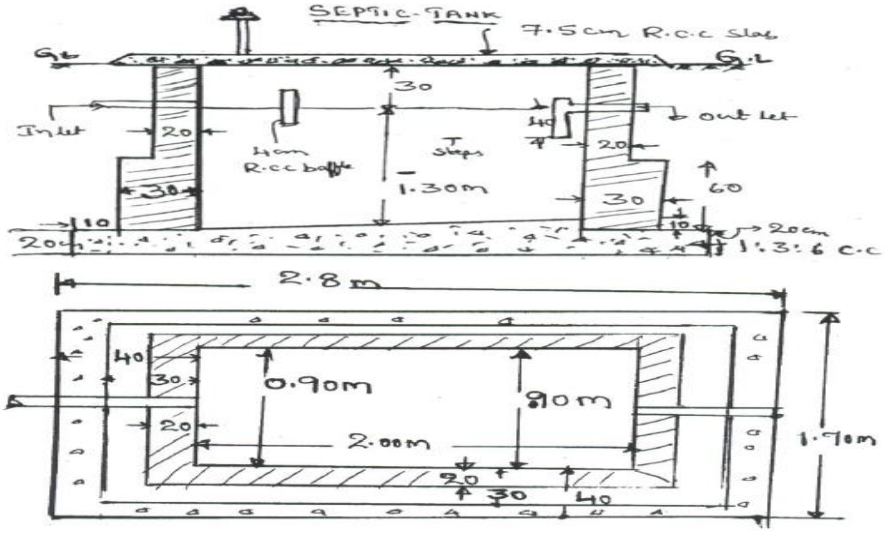
Ans

Item no.	particulars	No.	L	B	H	Q	Remarks	
1	**Earthwork in excavation**	1	3.14*1^2		3.5	**10.99**	R=(1+.4+.4+.1+.1)=2.0	4
							H=.4+1+1+1+.1 = 3.5	
2	**CC bed 1:3:6**							
	foundation	1	3.14*1^2		0.4	1.26		4
	benching	1	3.14*.5^2		0.4	0.314	cylinder	
	deduct	1	3.14*.35^2		0.2	0.0769	for frustum of cone	
						1.4971		
3	**BBM in CM 1:4 for wall**							
	step 1	1	3.14*1.4	0.4	1	1.758	ave. Dia. = 1.4	4
	Step 2	1	3.14*1.3	0.3	1	1.22	ave. Dia. = 1.3	
	step 3	1	3.14*1.2	0.2	1	0.753	ave. Dia. = 1.2	
						3.731		
4	**RCC slab in CC 1:2:4 with 45cm manhole cover**	1	3.14*.7^2		0.1	0.154		4
	deduct man hole cover	1	3.14*.225^2		0.1	0.016		
						0.138		
5	**Plastering in CM 1:3 for side walls**	1	3.14*1		2.6	**8.164**	H=3-.4	4

2.	Prepare the steel quantity estimate for thetrussmember resting on 40cm wall as shown in the fig Sections of the member 1.Principal rafter ISA 75X75X8mm @ 8.9 kg/m 2.Inclined ties ISA 50x50x6mm @ 4.5 kg/m 3.Struts ISA 65x65x6mm @ 5.8 kg/m 4.Main Tie ISA 60x60x8 mm @ 7.0 kg/m  	10	CO1	5

Ans

Item no.	particulars	no.	L	B	unit weight	total weight	remarks	
1	principal rafter	2	6		8.9	106.8	L=√(6^2+1.7^2) = 6.23: (10+.4+.8+.8)/2= 6	2
2	inclined tie	2	2.4		4.5	21.6		2
3	strut	2	1.25		5.8	14.5		2
4	main tie	1	10.4		7	72.8	L=10+.2+.2 = 10.4	2
						215.7	Kg	2

3	The details of a septic tank is shown I figure. Estimate the quantity for the following items of the work. (Plan is given in 3b part) 1.Earthwork excavation in foundation 2.Cement concrete 1:3:6 floor and foundation. 3.First class brickwork with CM 1:4 4.12mm thick cement plaster 	10	CO1	5

Ans

Item no.	particulars	no.	L	B	H	Q	remarks
1	**Earthwork excavation in foundation**	1	2.8	1.7	1.85	8.806	H=1.3+0.3+.05+.2
					Total	**8.806m³**	
2	**Cement concrete 1:3:6 floor and foundation.**						
	foundation	1	2.8	1.7	0.20	0.952	
	floor	1	2.00	0.90	0.05	0.09	H=(0+0.10)/2
					Total	**1.042 m³**	
3	**First class brickwork with CM 1:4**						
	Step 1						
	Long wall	2	2.60	0.3	0.60	0.936	
	Short wall	2	0.90	0.3	0.60	0.324	
	Step 2						
	Long wall	2	2.40	0.2	1.05	1.008	
	Short wall	2	0.90	0.2	1.05	0.378	
					Total	**2.646m³**	
4	**12mm thick cement plaster**	2	2.00	--	1.6	6.4	
		2	0.90	--	1.6	2.88	
					Total	**9.28m²**	

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4	Estimate the cost of RCC roof slab in CC 1:1½:3 over a room of internal size 3m x 4m. Also calculate the quantity of materials required. Given Slab thickness: 15cm Wall thickness: 30cm Steel reinforcement: twisted bars Main steel: 10mm dia. At 150mm c/c (alternate bars bend-up) Distribution steel: 8mm dia. At 200 mm c/c Cover to reinforcement: 20mm	10	CO1	5

Ans

Item no.	particulars	no.	L	B	H	Q	remarks	
1.	Cement Concrete 1:1½:3	1	4.30	3.30	0.15	2.128	Slab bearing = 15cm	2
						2.128m^3		
2.	Steel				**unit weight**			
	Main straight steel 10mm dia @300mm c/c No. = [4.3-2*0.02]/0.30 + 1	15	3.26		**0.62kg/m**	30.318kg	L=3.3-2*0.020	4
	Main bent up bars 10mm dia @ 300mm c/c No. = [4.3-2*0.02]/0.30	14	3.37		**0.62kg/m**	29.251kg	L=3.3-2*0.20 + one depth L=3.3-2*0.20 + (0.15-2*0.02)	4
	Distribution steel 8mm dia @ 200mmc/c No. = [3.3-2*0.02]/0.20 + 1	17	4.26		**0.395kg/m**	65.79kg	L=4.3-2*0.20	
					Total	**125.36 kg**		

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