U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

January / February 2025 Semester End Main Examinations

Programme: B.E. **Semester: VII**
Branch: Civil Engineering **Duration: 4 hrs.**
Course Code: 21CV7PCCSE **Max Marks: 100**
Course: Contracts, Specification and Estimation

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

		UNIT - I	*CO*	*PO*	Marks
1	a)	List the factors to be considered during the preparation of a detailed estimate.	*CO* 1	*PO1*	**05**
	b)	The accompanying Figure 1 shows the details of a residential building. Estimate the quantities by Center Line Method and cost of the following items of works. a) Earthwork excavation for foundation in hard soil at a rate of Rs. 275/Cum b) SSM in CM 1:6 in foundation at the rate of Rs. 4000/Cum c) First class BBM in CM 1:6 for superstructure at a rate of Rs. 6000/Cum. Thickness of Roof slab is 0.12m.	*CO* **2**	*PO* 2	**15**

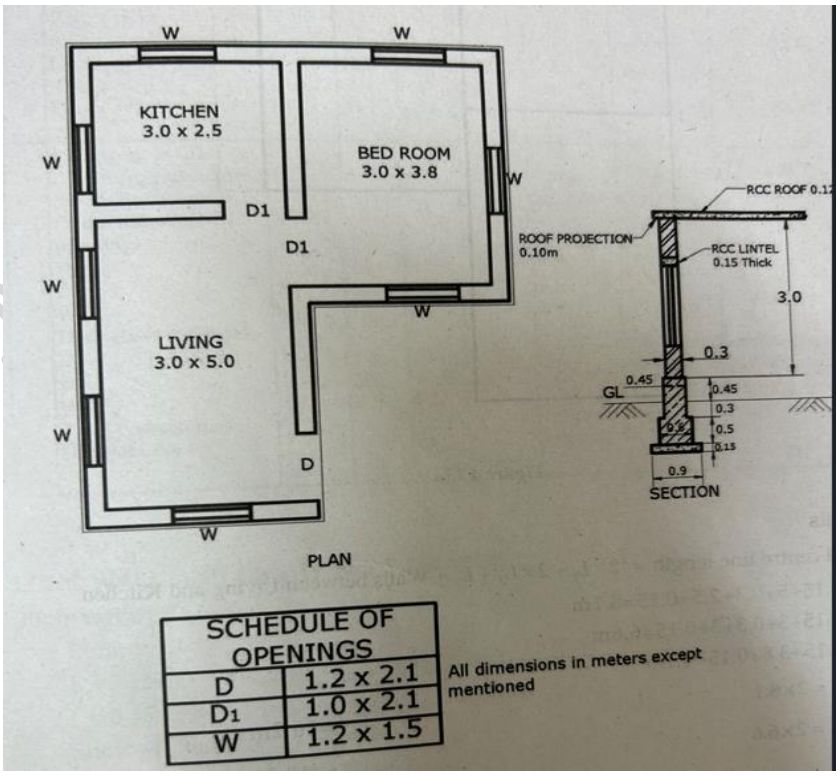


Figure 1

			OR			
	2	a)	Discuss various methods of taking out quantities.	***CO*** 1	***PO1***	**08**
		b)	Prepare a rough-cost estimate of a residential building project with a total plinth area of the building - 140 Sqm. Given that: Plinth Area Rate = ₹ 16,000.00 / Sqm Extra for special architectural treatment = 2.5% Extra for water supply and sanitary installations = 8% Extra for internal installations = 10% Extra for Electric & gas services = 10% Contingencies 3% Supervision charges = 8% Design charges = 2.5%	***CO*** 1	***PO3***	**12**
			UNIT - II			
	3	a)	The details of a Man hole are shown in Figure 2. Estimate the quantities and cost of the following i) Earth work excavation for foundation in soft soil at the rate of Rs 255/cum. ii)Cement Concrete 1:3:6 at a rate of Rs 4000/cum. First Class Brick work in CM 1:4 at a rate of Rs. 6500/Cum. iii)Internal Plastering for the walls in CM 1:3, 20 mm thick at a rate of Rs. 500.00/Sqm iv)Cement pointing in CM 1:2 at a rate of Rs. 600.00/Sqm	***C02***	**P02**	**20**

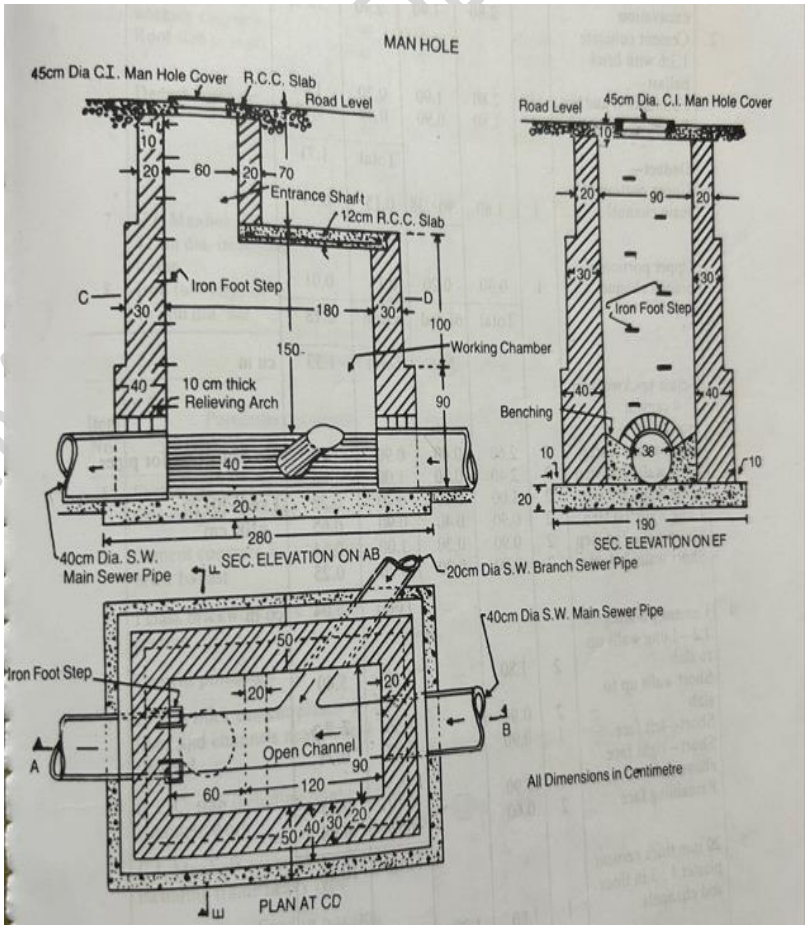
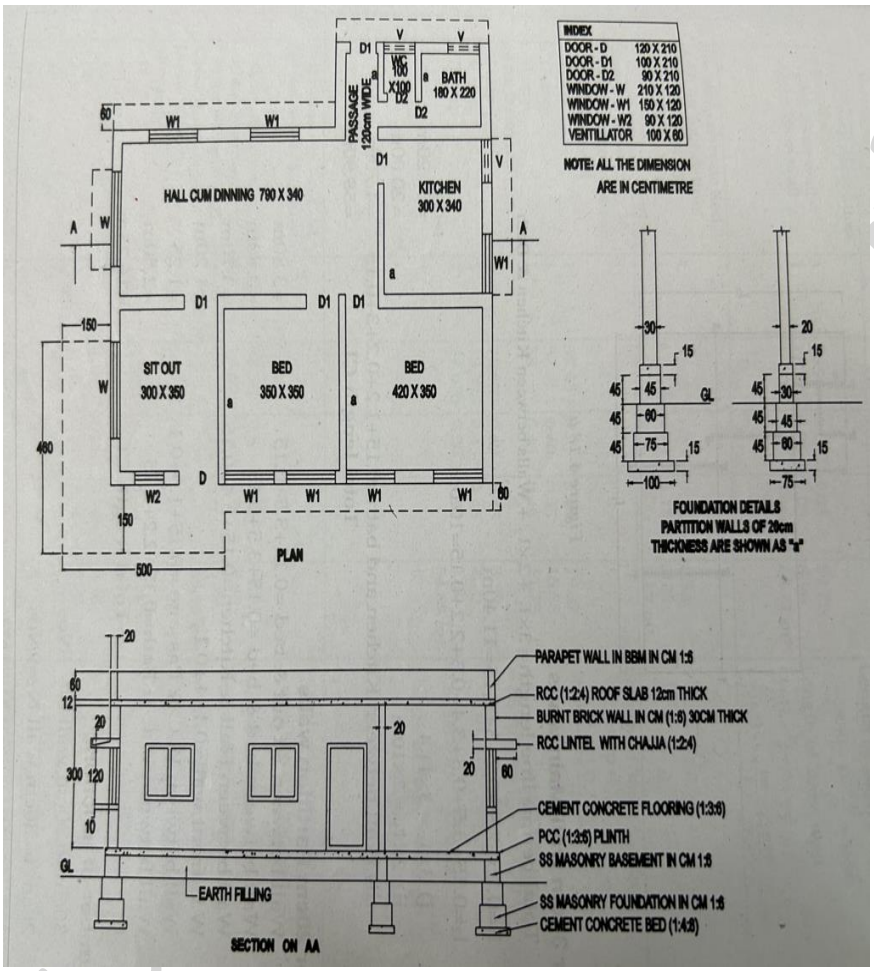


Figure 2

	4		**OR** The accompanying Figure 3 shows the details of a residential building. Estimate the quantities by Long wall and Short wall method and cost of the following items of works. a) Earthwork excavation in foundation at a rate of Rs. 275/Cum b) Cement Concrete Bed 1:3:6 for foundation at a rate of Rs. 4500/Cum c) SSM in CM 1:6 for foundation at the rate of Rs. 4000.00/Cum d) BBM in CM 1:6 at a rate of Rs. 6000/Cum Figure 3 	***CO* 2**	***PO* 2**	**20**
			UNIT - III			
	5	a)	List various methods of earthwork estimation. Discuss the Mean sectional area formula method.	***CO* 2**	***PO* 1**	**10**
		b)	Estimate the cost of earthwork for a portion of the road from the following data. The formation width of the road is 10m. Side slopes are 2:1 in filling and 1.5:1 in cutting. Compute volume by Prismodal formula method.	***CO* 2**	***PO* 2**	**10**
			OR			
	6	a)	Estimate the quantities of earthwork for an embankment to support a railway track at a uniform downward gradient from station A to I. The formation levels at station A and I are RL 218.90 and RL 218.10	***CO* 2**	***PO* 2**	**10**

Distance	150	180	210	240	270	300	330	360
G. L.	298.5	299.5	300	300.2	300.9	301.5	301.6	302.7
F. L.	299	Upgradient of 1 in 60						

		respectively. The ground levels a various stations 50m apart are as shown in table. The formation widths are 5.5m in cutting and 6.0m in banking. The side slopes are 1.5: 1 in cutting and 2:1 in banking. There is no transverse slope of the ground. Apply prismoidal formula for computations.			

Station	A	B	C	D	E	F	G	H	I
G. L.	220.5	220.1	219.7	219.2	218.5	218.2	217.7	217.3	217.5

	b)	Estimate the quantities of earthwork for a portion of a proposed road from the following data. Proposed formation width of road is 10m, side slope 1.5 :1 in cutting and 2:1 in banking. Assume there is no transverse slope. Compute the volume by using Mid Sectional area method.	***CO*** **2**	***PO*** 2	**10**

Station	0	60	120	180	240	300	360	420	480	540
R.L of G. L. (m)	73.12	72.44	71.86	72.08	71.30	70.80	70.54	70.82	70.96	71.50
RL of FL (m)	72.42	← Downward gradient 0.8% →				← Upward gradient 0.5% →				

		UNIT - IV			
7	a)	Discuss the necessity of specifications.	***CO*** **3**	***PO*** 1	**05**
	b)	Discuss in brief specifications required for cement BBM in CM 1:6	***CO*** **4**	***PO*** 1	**05**
	c)	Find out rate analysis for Internal plastering of 20 mm Cement motar1:6.	***CO*** **3**	***PO*** 2	**10**
		OR			
8	a)	Discuss in brief about general specifications.	***CO*** **3**	***PO*** 1	**05**
	b)	Discuss in brief specifications required for SSM in CM 1:6.	***CO*** **4**	***PO*** 1	**05**
	c)	Find out rate analysis for RCC works for beams, columns and slabs with 1.5% of reinforcement.	***CO*** **3**	***PO*** 2	**10**
		UNIT - V			
9	a)	Discuss various types of engineering contract with advantages and disadvantages.	***CO*** **4**	***PO1***	**10**
	b)	Discuss the various tender documents which are required for evaluating the bidders and to award of the work.	***CO*** **4**	***PO1***	**10**
		OR			
10	a)	Mention the objectives of contract. List the requirements for a valid contract.	***CO*** **4**	***PO***	**10**
	b)	Discuss in detail about breach of contract and arbitration.	***CO*** **4**	***PO*** 1	**10**

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