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BOARD DIPLOMA EXAMINATION, (C-20)

NOVEMBER/DECEMBER—2022

DCE – FOURTH SEMESTER EXAMINATION

QUANTITY SURVEYING – I

Time : 3 hours]

[Total Marks : 80

PART—A

3×10=30

- Instructions :** (1) Answer **all** questions.
(2) Each question carries **three** marks.
(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. State any three objectives for preparing the estimate.
- * 2. Prepare an approximate estimate of a hospital building for 100 beds. The cost of construction altogether for each bed is ₹ 50,000. Determine the total cost of hospital building.
3. Tabulate the format of a detailed estimate.
4. Calculate the quantity of cement concrete (1 : 1.5 : 3) required for RCC lintels over 4 windows of size 0.90 m × 1.20 m of a residential building. Thickness of wall is 230 mm and thickness of lintel is 100 mm and bearing on either side of windows is 150 mm.

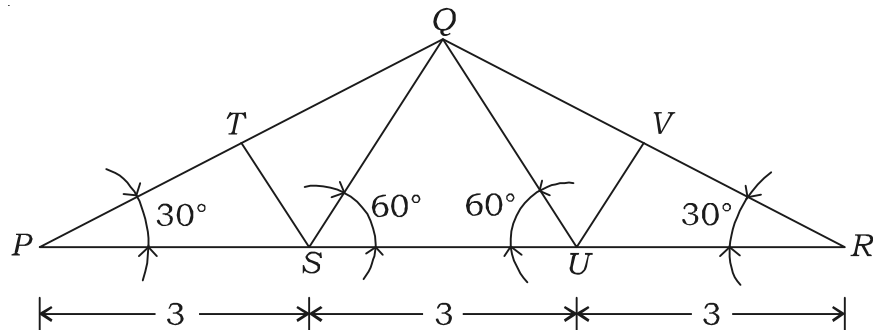
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5. Find the quantity of steel required for the principal rafter QR having a weight of 116.7 N/m of a simple steel truss shown below.



6. Define analysis of rates.
7. Distinguish between the cost of material at source and the cost of material at site.
8. Calculate the quantities of 5 m³ of CC(1 : 2 : 4).
9. The depths at two ends of an embankment of a road of length 200 m are 3.20 m and 3.95 m. The formation width and side slopes are 10.00 m and 2 : 1 respectively. Estimate the quantity of earthwork by mean sectional area method.
10. Define the terms Lead and Lift for the formation of roads.

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PART—B

8×5=40

- Instructions :** (1) Answer **all** questions.
(2) Each question carries **eight** marks.
(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.
11. (a) Prepare an approximate estimate for a proposed commercial complex for the following data :

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Plinth area	= ₹ 1,200 per m ² /floor	
Height of each floor	= 3 m	
Number of floors	= Ground floor + 3	
Cubic content rate	= ₹ 2,500 per m ³	
Additional Provisions :		
Water supply and sanitary fittings	= 9% of building cost	
Electrical wiring and fittings	= 7% of building cost	
Fluctuation of rates	= 4.5% of building cost	
Contractor's margin	= 9% of total cost	
Pretty supervision and contingencies	= 2.5% of total cost	

(OR)

(b) Prepare a preliminary estimate of a proposed building with the following data by using Plinth area method :

Plinth area	= 250 m ²
Plinth area rate of structure cost	= ₹ 3500.00 per m ²

Provide the following as a percentage on the structure cost :

(i) Water supply and sanitation	= 12.5%
(ii) Electrification	= 7.5%
(iii) Architectural features	= 2.0%
(iv) Unforeseen items	= 2.0%

12. (a) Prepare the detailed estimate for the following items of works from the figure No. 1 (Plan and Section) :

- (i) Earthwork excavation
- (ii) Plastering with CM (1 : 4) for inside walls

(OR)

(b) Prepare the detailed estimate for the following items of works from the Figure No. 1 (Plan and Section) :

- (i) Brick masonry in CM (1 : 6) around the septic tank
- (ii) Precast RCC for scum board

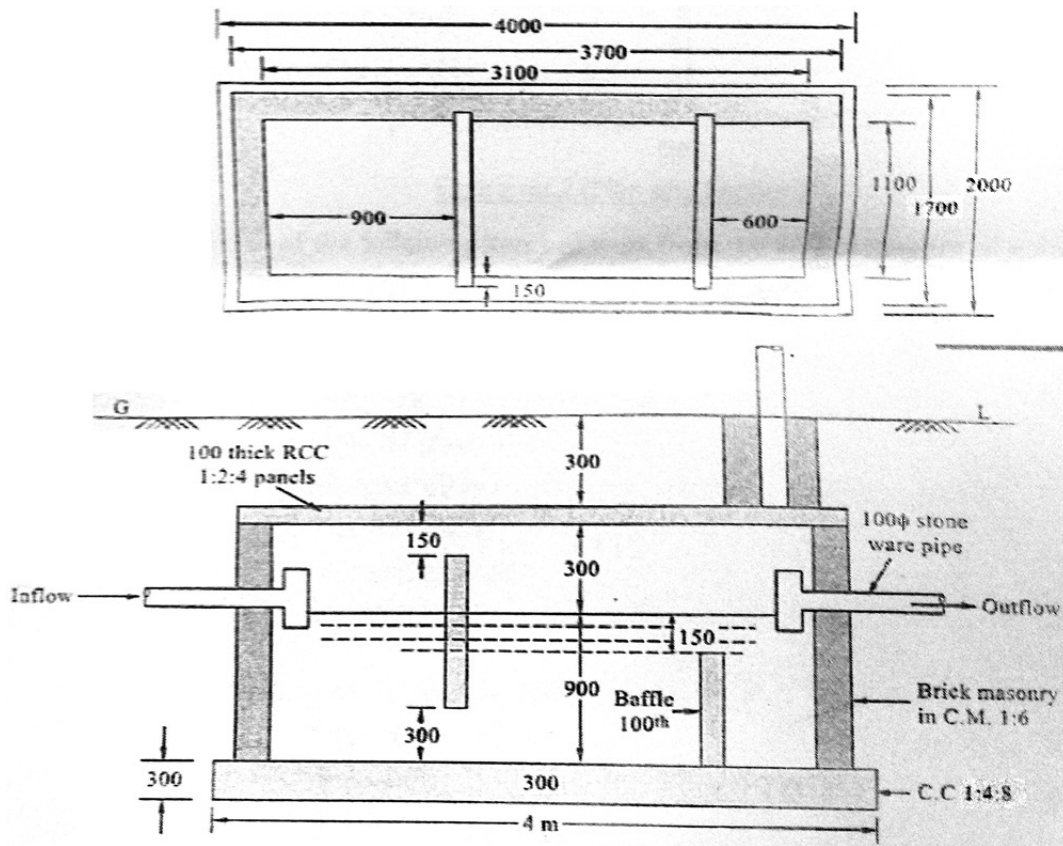


Figure No. 1 (Plan and Section)

13. (a) Prepare the detailed estimate for the following items of works from the Figure No. 2 :

- (i) Earthwork Excavation
- (ii) Cement concrete (1 : 4 : 8) for foundation

(OR)

(b) Prepare the detailed estimate for the following items of works from the Figure No. 2 :

(i) Brick masonry with CM (1 : 6) for first footing

(ii) Brick masonry with CM (1 : 6) for second footing

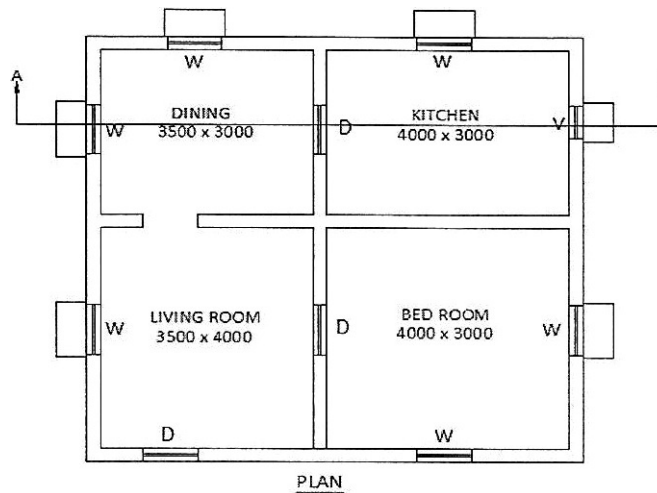
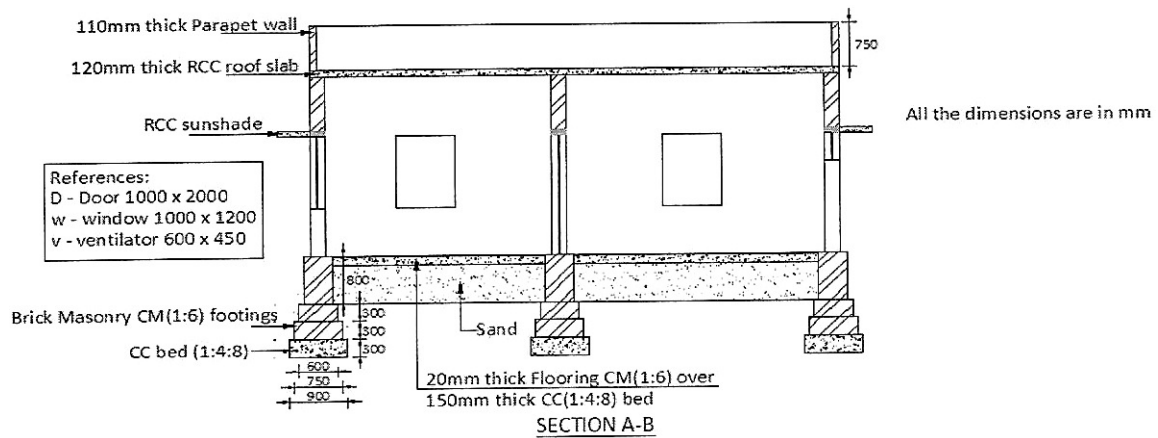


Figure No. 2 (Plan and Section)

14. Calculate the cost of the following items of works from the lead statement of materials and labour charges given below :

(a) RR Masonry in CM (1 : 6) for 1 m³

1.1 m ³	Rough stones
0.38 cu.m	CM (1 : 6)
0.54 No.s	Mason I class
1.26 No.s	Mason II class
1.40 No.s	Man Mazdoor
1.40 No.s	Woman Mazdoor
LS	Sundaries

(OR)

(b) Plain cement concrete for foundation (1 : 3 : 6) for 1 m³

0.92 m ³	40 mm HBG metal
0.46 m ³	Sand
0.154 m ³	Cement
0.06 No.s	Mason I class
0.14 No.s	Mason II class
1.18 No.s	Man Mazdoor
1.40 No.s	Woman Mazdoor
LS	Sundaries

Lead Statement of Materials :

Sl. No.	Materials	Cost at Source (₹)	Per	Lead	Conveyance charges
1	40 mm HBG metal	452.00	1 m ³	14	₹ 203.00/1 m ³
2	Rough stones	283.00	1 m ³	15	₹ 216.00/1 m ³
3	Sand	700.00	1 m ³	18	₹ 265.00/1 m ³
4	Cement	3800.00	1 Ton	6	₹ 2.00/bag/1 m ³

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Labour Charges :

Mason Ist class	= ₹ 585 per day
Mason IInd class	= ₹ 525 per day
Man mazdoor	= ₹ 490 per day
Woman mazdoor	= ₹ 490 per day
Mixing charges for CM	= ₹ 70 per cu.m

15. (a) A road in embankment has the following data :

Chainage (m)	0	30	60	90	120
RL of ground (m)	62.000	62.350	62.850	63.300	63.750

The formation level at zero chainage is 63.00 m and having a rising gradient of 1 in 150. Top width of formation is 8 m and side slope 2 : 1. Assume the transverse slope of the ground is level. Calculate the volume of earthwork by Prismoidal rule.

(OR)

- (b) Calculate the capacity of a reservoir with the data given below by —

(i) Trapezoidal rule

(ii) Prismoidal rule

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S. No.	Level (m)	Area (m ²)	Particulars
1	52	6000	Bed of reservoir
2	54	9800	
3	56	14500	Still level of sluice
4	58	21000	
5	60	27500	
6	62	36400	FTL
7	64	45600	MWL

Instructions : (1) Answer the following question.
 (2) The question carries **ten** marks.

16. Prepare the detailed estimate for the following items of works from the Figure No. 3 (Plan and Section) shown below :

- (i) RCC (1 : 1 : 5 : 3) for columns upto ground level 4
- (ii) Brick masonry in CM (1 : 5) without deductions for openings 3
- (iii) Plastering with 20 mm thick in CM (1 : 4) for external surface 3

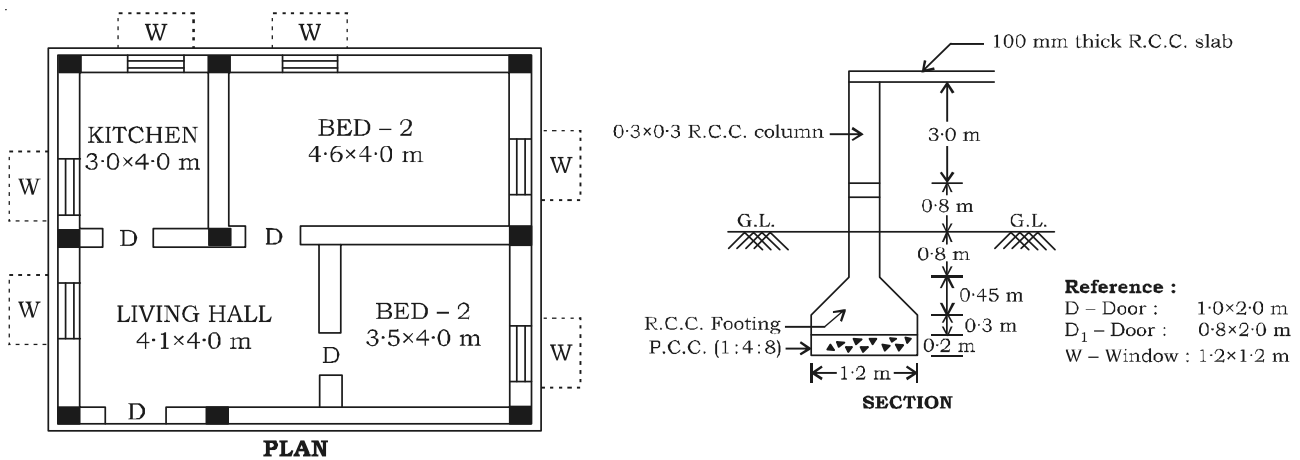


Figure No. 3 (Plan and Section)

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