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C20-C–403

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BOARD DIPLOMA EXAMINATION, (C-20)

OCTOBER/NOVEMBER—2023

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. Write the units for the following :

(a) Fencing

(b) Jungle clearance

(c) Sand filling

2. State the difference between detailed estimate and abstract estimate.

3. Prepare the total cost of the building by plinth area method with the following data :

(a) Plinth area of the building – 500 m^2

(b) Plinth area rate – ₹18,000

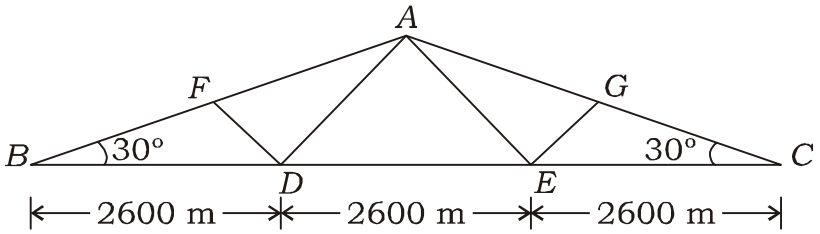
(c) 25% of building cost is allowed for different provisions of water supply, sanitation, electrical installations, PS and contingencies etc. altogether.

4. Calculate the quantity of cement concrete 1 : 2 : 4 rquired for RCC lintel over doors of a residential building. There are 8 doors of size 1·20 × 2·10 m. Thickness of wall is 300 mm and thickness of lintel is 120 mm and a bearing on either side of door is 180 mm.

5. From the simple steel truss shown in the figure below, find the steel required for the following :

(a) Principal rafter AC @ 0·110 kN/m

(b) Tie EG @ 0·056 kN/m



6. Write a short note on standard schedule of rates.

7. Calculate the cement required in bags for preparing CC 1 : 5 : 10 using 40 mm HBG metal for 30 m^3 work.

8. Find the cost of material at site for the following :

S.No.	Material	cost at source	Per	Lead	Conveyance charges per km MT
1	40 mm HBG metal	₹500	1 m^3	35 km	₹9·50 per cu.m

9. Define the terms lead and lift used in road formation and give their initial values.

10. The details of road of 1·50 km length AB are given below. Depth of embankment at A and B are 1·10 m and 2·10 m respectively, side slopes 1 : 1 and width of road at top is 8·5 m. Calculate the volume of earth work by mean sectional area method.

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 shopping complex of Municipal Corporation with the following data :
Plinth area – 900 m^2 per floor
Height of each floor – 3 m
No. of stories – GF + 3
Cubic content rate – ₹9,000 per m^3

Provisions are as follows :

(i)	Water supply and sanitation	=	6% of building cost
(ii)	Electrification	=	8% of building cost
(iii)	Fluctuations of rates	=	7% of building cost
(iv)	Contractor's profit	=	12% of building cost
(v)	PS and contingencies	=	3% of building cost

(OR)

(b) State and explain the methods of preparing approximate estimtes.

12. *(a)* Prepare the detailed estimate for the following items of works from the figure 1 :

(i) Cement concrete (1 : 4 : 8) in foundation bed

(ii) RR masonry in CM 1 : 6 for foundation

(iii) RCC 1 : 1·5 : 3 for RCC slab

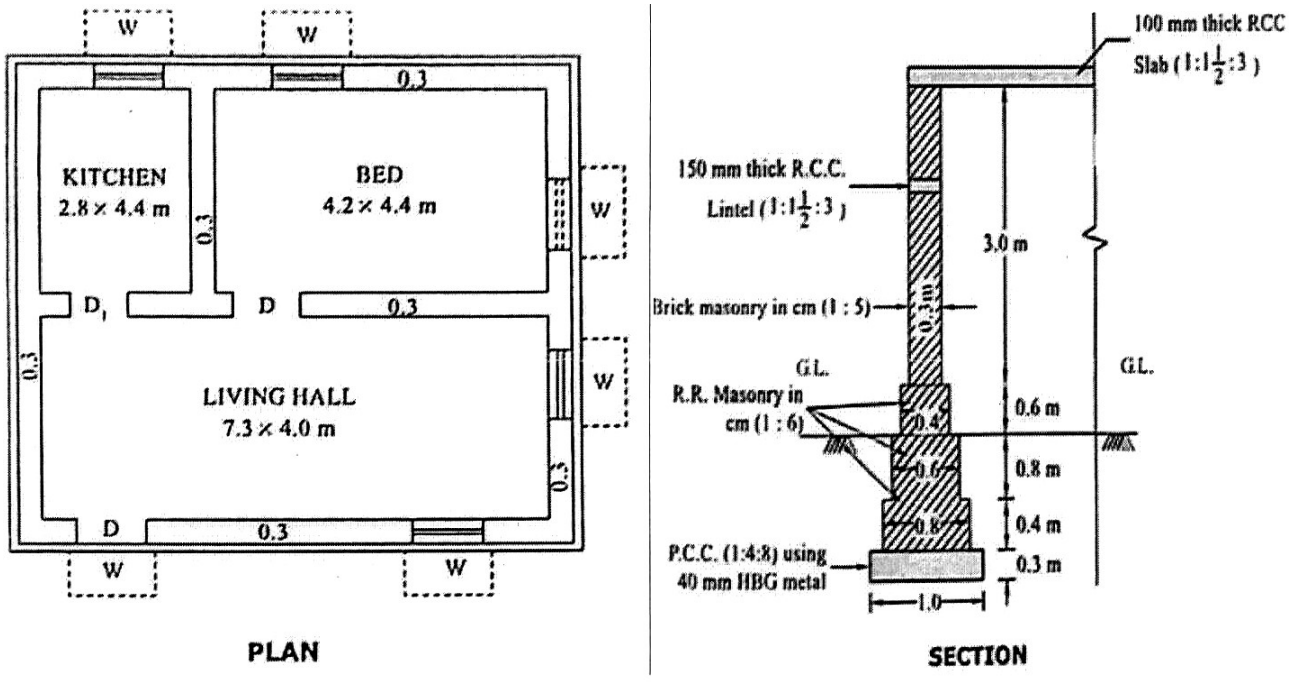


Fig.1

(OR)

(b) Prepare the detailed estimate for the following items of works from the figure 1 :

(i) Earth work excavation for foundation

(ii) Internal plastering in CM 1 : 4 without deductions

(iii) RR masonry in CM 1 : 6 for basement

13. *(a)* For the building shown in Fig.2, calculate the quantities of the following items of work :

(i) RCC (M20) using HBG metal for all column footings

(ii) Brick masonry in CM 1 : 4 without deductions

(OR)

(b) For the building shown in Fig.2, calculate the quantities of the following items of work :

(i) RCC (M20) using HBG metal for all columns

(ii) Plastering with CM (1 : 3) without deductions

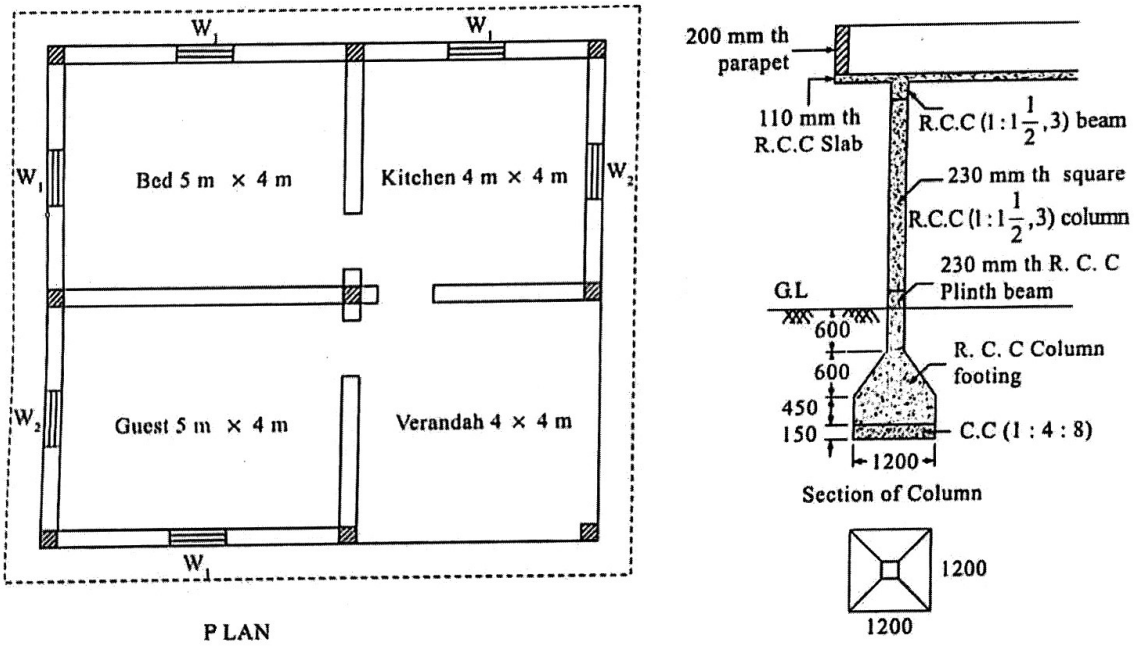


Fig.2

14. *(a)* Prepare a data sheet and calculate the cost of the items given below :

(i) Cement concrete (1 : 4 : 8) using 40 mm HBG metal — 1 m^3

(ii) RR masonry in CM (1 : 6) — 1 m^3

Materials and labour required for :

Cement concrete (1 : 4 : 8) – 1m^3

0·92 m^3 – HBG metal

0·46 m^3 – Sand

0·115 m^3 – Cement

0·20 Nos. – Mason

3·20 Nos. – Mazdoors

LS sundries

RR masonry in CM (1 : 6) –1 m^3

1·10 m^3 – Rought stone

0·34 m^3 – CM (1 : 6)

1·80 Nos. – Mason

2·80 Nos. – Mazdoors

LS sundries

Lead statement of materials :

S.No.	Materials	Rate (₹)	Per	Lead	Conveyance charges
1	40 mm size HBG metal	550	1 m^3	10 km	₹14 per 1 km
2	Sand	450	1 m^3	8 km	₹12 per 1 km
3	Rough Stone	310	1 m^3	5 km	₹10 per 1 km
4	Cement	6,600	1 ton	At site	

Labour charges per day :

(i) Mason 1st class = ₹440

(ii) Mason 2nd class = ₹420

(iii) Mazdoor = ₹350

(iv) Hand mixing charges for CM per m^3 = ₹60

(OR)

(b) Prepare the data sheet and calculate the cost for the following items of work :

(i) RR masonry with CM (1 : 8) unit – 1 m^3

1·05 m^3 rough stone

0·34 m^3 CM (1 : 8)

1·8 Nos. Mason

2·8 Nos. Man mazdoor

LS sundries

(ii) Pointing to RR masonry in CM (1 : 5) unit – 10 m^2

0·09 m^3 CM (1 : 5)

2·28 Nos. Mason

0·5 Nos. Man mazdoor

1·1 Nos. Woman mazdoor

LS sundries

Lead statement of materials :

S.No.	Materials	Rate (₹)	Per	Lead	Conveyance charges
1	Rough stone	330	1 m^3	15 km	₹12 per 1 km
2	Sand	95	1 m^3	10 km	₹13 per 1 km
3	Cement	3500	MT	At site	

Labour charges :

(i) Mason = ₹225·00/day

(ii) Men mazdoor = ₹180·00/day

(iii) Women mazdoor = ₹180·00/day

(iv) Mixing charges for CM = ₹40·00/m^3

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

Chainage (in m)	0	30	60	90	120	150
RL of ground (in m)	30·80	31.25	31.85	32.25	33.00	35·20

Formation level at chainage zero is 33·00 and having a rising gradient of 1 in 120. Top width of the formation is 10·5 m and side slope $2H : 1V$. Assuming that the transverse slope of the ground is in level, calculate the volume of earth by

(i) Trapezoidal formula

(ii) Prismoidal formula

(OR)

(b) From the particulars of a reservoir given below, calculate the capacity of a reservoir between the sill level and MWL of the reservoir by

(i) Trapezoidal formula

(ii) Prismoidal formula

S.No.	Level (in m)	Area (m^2)	Particulars
1	42·00	1300	Bed of reservoir
2	44·00	2800	–
3	46·00	4200	Sill level of sluice
4	48·00	6500	–
5	50·00	9500	–
6	52·00	12000	FTL
7	54·00	15000	MWL

PART—C

10×1=10

Instructions : (1) Answer the following question.

(2) The question carries **ten** marks.

16. Prepare an estimate for the road from chainage 0 mts to 270 mts without turfing the slopes. Adopt rate of earth work in cutting and filling at ₹19 per m^3. The formation width of proposed road is 12 m. Side sloped 1½ : 1 for cutting and 2 : 1 for filling. The road formation has a uniform falling gradient of 1 in 200. At 0 m chainage the formation level is at ground level. RL of ground level at different chainages are as follows :

Chainage (in m)	0	30	60	120	150	180	210	240	270
RL of ground (in m)	118·60	199.25	199.40	118.85	118.50	117.25	116·80	117.15	117.20

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