

7426

BOARD DIPLOMA EXAMINATION, (C-20)

MAY—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.

1. Define quantity surveying.
2. State the different methods of preparing preliminary estimates.
3. Prepare an approximate estimate of a private hostel building for 250 students capacity. The cost of construction of a building including all provisions is arrived at ₹40,000/- per student. Determine the total cost of hostel building..
4. State the information required for preparation of detailed estimates of a building.
5. Calculate the quantity of cement concrete (1 : 1.5 : 3) required for R.C.C lintels over 4 doors of size 1.00 m × 2.00 m of a residential building. Thickness of wall is 300 mm and thickness of lintel is 100 mm and bearing on either side of doors is 150 mm.
6. State the purposes of analysis of rates.
7. Calculate the cost of conveyance for Coarse aggregates if the lead is 4 km MR and 2 km CT. The conveyance charges for Coarse aggregates on metalled road are given below :

Distance	Charges for Coarse aggregates per cu.m
Lead upto 1 km	32.50
Lead upto 2 km	45.50
Lead upto 3 km	60.60
Lead upto 4 km	73.60
Lead upto 5 km	86.60
for Every km beyond 5 km up to 30 km	13.00

8. Tabulate the format of a standard data sheet.
9. Find the quantity of earthwork for 1.5 km length of road and the formation width of road is 7.5 m. Depth and side slopes of the embankment are 1.75 m and 1.5 : 1 respectively.
10. A canal is proposed to be excavated between two points *A* and *B* 140 m apart. If the bed width is 7.50 m, side slopes 1.5 : 1 and depth of cutting at *A* is 1.95 m and at *B* is 2.55 m. Calculate the quantity of the earthwork excavation by mid sectional area method.

**PART—B**

8×5=40

- Instructions :** (1) Answer **all** questions.  
(2) Each question carries **eight** marks.

11. (a) Prepare an approximate estimate for a residential building with the following data by using Plinth area method.

Plinth area = 120 m<sup>2</sup>

Plinth area rate of structure cost = ₹4500.00 per m<sup>2</sup>

Provide the following as a percentage on the structure cost

- (i) Water supply and sanitation = 12.5%  
(ii) Electrification = 7.5%  
(iii) Architectural features = 0.75%  
(iv) Work charged establishment = 2.5%

**(OR)**

- (b) Prepare an approximate estimate for a proposed commercial complex for the following data :

Plinth area = ₹1000/- per m<sup>2</sup>/floor

Height of each floor = 3 m

No. of floors = Ground floor + 2

Cubic content rate = ₹2000/- per m<sup>3</sup>

Additional Provisions :-

Water supply and sanitary fittings = 10% of building cost

Electrical wiring and fittings = 7.5% of building cost

Fluctuation of rates = 5% of building cost

\* Contractor's margin = 10% of total cost

Pretty supervision and contingencies = 3% of total cost

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

(i) Earth work excavation for septic tank

(ii) Brick masonry in CM (1 : 6)

(OR)

(b) Prepare the detailed estimate for the following items of works from the figure no.1 (Plan and Section)

(i) CC (1 : 4 : 8) using 40 mm HBG metal

(ii) RCC (1 : 2 : 4) with 20 mm HBG metal for top cover slab.

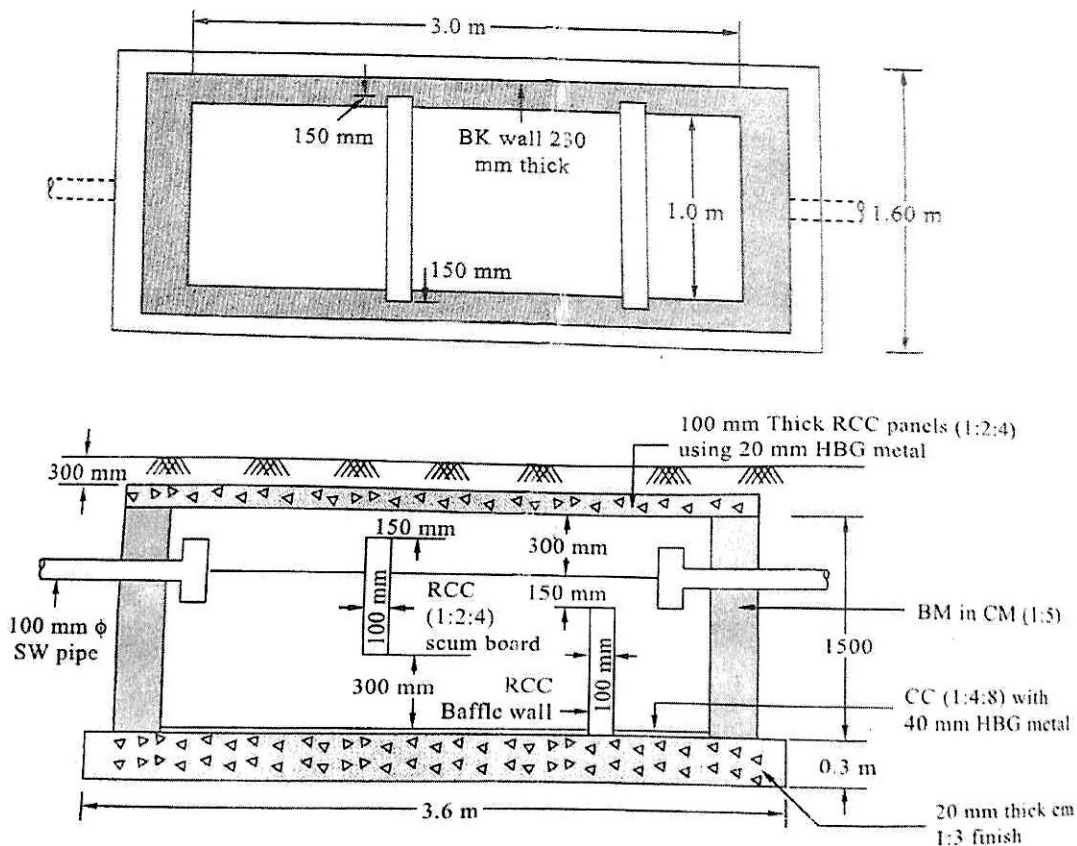


Figure no.1 (Plan and Section)

13. (a) Prepare the detailed estimate for the following items of works of a compound wall shown in figure no.2 below :

(i) Earth work excavation for foundation

(ii) Brick masonry in CM (1 : 8) for foundation and basement

(OR)

(b) Prepare the detailed estimate for the following items of works of a compound wall shown in figure no.2 below :

(i) CC (1 : 4 : 8) required for foundation

(ii) Plastering with CM (1 : 5) for the wall above ground level

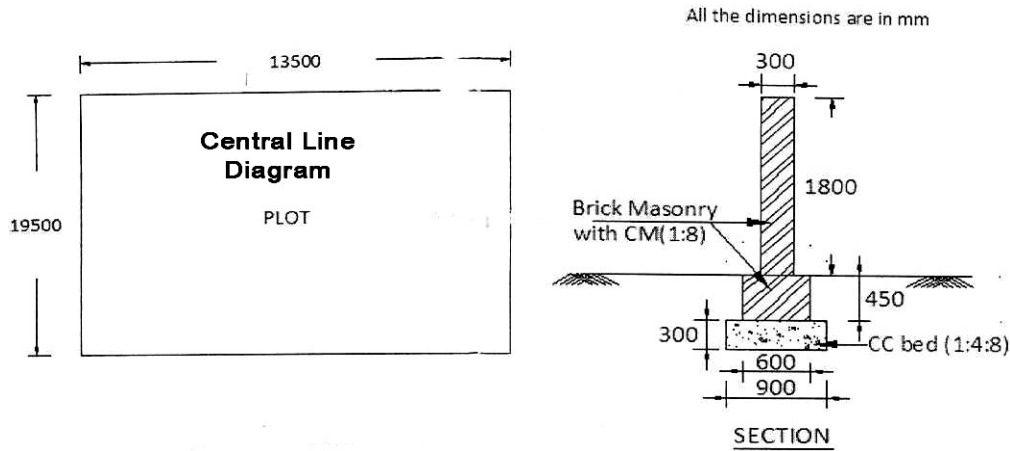


Figure no.2 (Plan and Section)

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

(a) Plastering with CM (1 : 5) 20 mm thick for 10 m<sup>2</sup>

0.21 cu.m	CM (1 : 5)
0.33 No.s	Mason 1st class
0.77 No.s	Mason 2nd class
0.50 No.s	Man Mazdoor
L.S	Sundries

\*

**(OR)**

(b) Brick masonry with country bricks in CM 1 : 6 for 1 cu.m

520 No.s	Bricks
0.20 cu.m	CM (1 : 6)
0.42 No.s	Mason 1st class
0.98 No.s	Mason 2nd class
0.70 No.s	Man Mazdoor
2.10 No.s	Woman Mazdoor
L.S	Sundries

Lead statement of materials :-

S.No.	Material	Rate at Source	Lead (Km.)			Conveyance charges
			ST	CT	MR	
1.	Bricks	₹7200 / 1000 No.s	-	4	25	Upto 20 km ₹470 beyond 20 km ₹21 per km
2.	Sand	₹700/Cu.m	2	3	10	Upto 20 km ₹292
3.	Cement	₹3800 per 1 MT				At site

Labour charges :-

Mason 1st class	=	₹585 per day
Mason 2nd 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 embankment has the following data :

Chainage (m)	0	30	60	90	120
RL of Ground Level (m)	121.525	120.255	122.150	119.675	122.345

The formation level from zero chainage to 120 m chainage is 123.000 m. Top width of an embankment is 9 m and side slopes are 2 : 1.

\* Assume there is no transverse slope. Calculate the volume of earth work by trapezoidal rule and Prismoidal rule.

\*

**(OR)**

(b) Calculate the live and dead storage of a reservoir with the following data :

S.No.	Level (m)	Area (m <sup>2</sup> )	Particulars
1.	155	14000	Bed level
2.	160	30000	-
3.	165	48000	Sill level
4.	170	92000	-
5.	175	145000	-
6.	180	285000	F.T.L
7.	185	415000	M.W.L

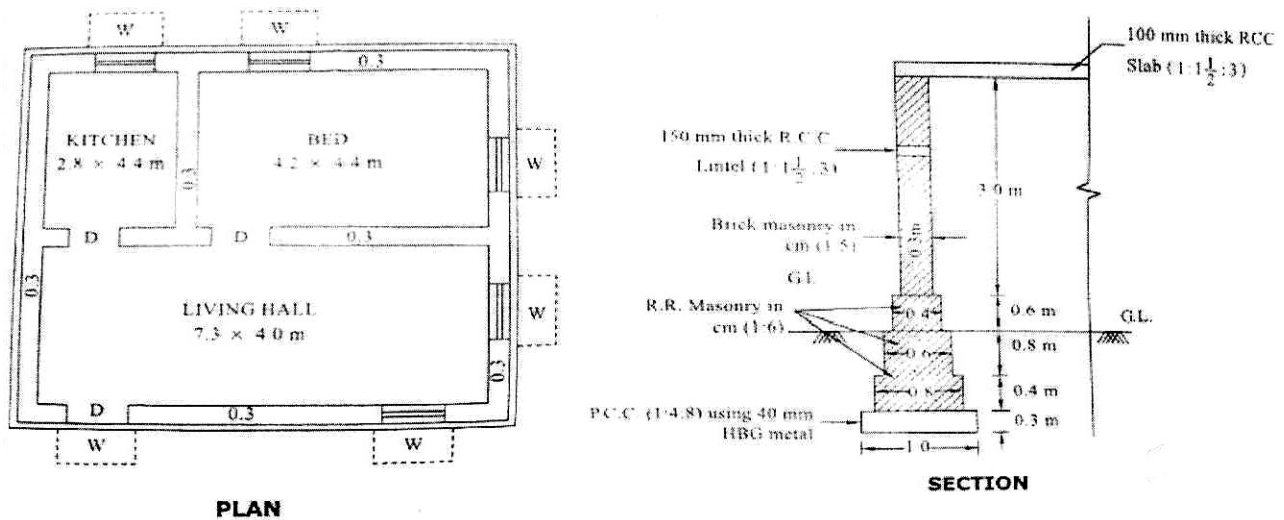
**PART—C**

10×1=10

**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 in below :

- (a) Earth work excavation for foundation 4
- (b) Brick masonry in CM (1 : 5) without deductions 3
- (c) R.R. Masonry in CM (1 : 6) for basement 3



**Figure no.3 (Plan and Section)**

\*\*\*