C14–C–**403**

4426

BOARD DIPLOMA EXAMINATION, (C–14)
MARCH/APRIL—2017
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.

(4) Assume any missing data suitably.

1. State the units of the following items :

(a) Earthwork excavation

(b) Brick masonry

(c) VRCC for columns

(d) Plastering

2. Mention any four rules for measurement of civil works.

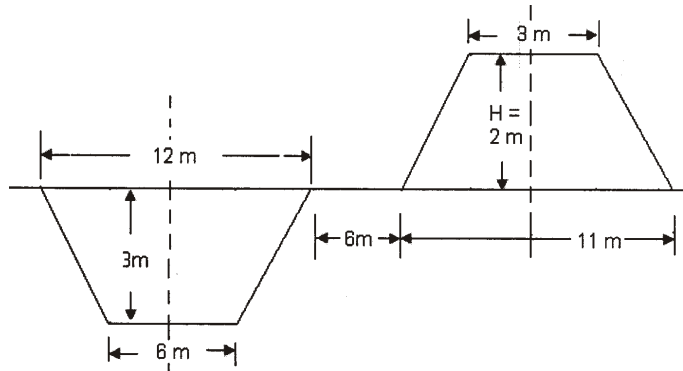**3.** A canal is proposed to be formed as shown in Fig. 1 below. Calculate lead and lift :

Fig. 1

4. Explain trapezoidal rule and prismoidal rule with usual notations.

5. The details of road of 1 km length, *AB* are given below :

        Depth of embankment at *A* = 1 m
        Depth of embankment at *B* = 2 m
        Side slopes of a road = 1 : 1
        Width of road at top = 8 m

Calculate the volume of earthwork by—

(a) mid-sectional area method;

(b) mean sectional area method.

6. Neatly tabulate formats of detailed estimate and abstract estimate separately.

7. State any two purposes of preparing approximate estimate.

8. A parapet wall is to be constructed with a thickness of 120 mm over a rectangular building of 10 m×12 m having wall thickness 300 mm. Calculate the quantity of brickwork required for the parapet, if the height of the parapet is 600 mm.

          2   [*Contd...*

9. Calculate the quantity of cement concrete (1 : 1½ : 3) required for RCC lintels over doors and windows of a residential building. There are 6 doors of size 1·1 m×2·10 m and 8 windows of size 1·1 m×1·8 m. Thickness of wall is 230 mm and thickness of lintel is 100 mm and a bearing on either side of doors and windows is 150 mm.

10. For the specification shown in Fig. 2 below, what will be the length of hipped rafter? The rise of hipped roof is 1/3 span :
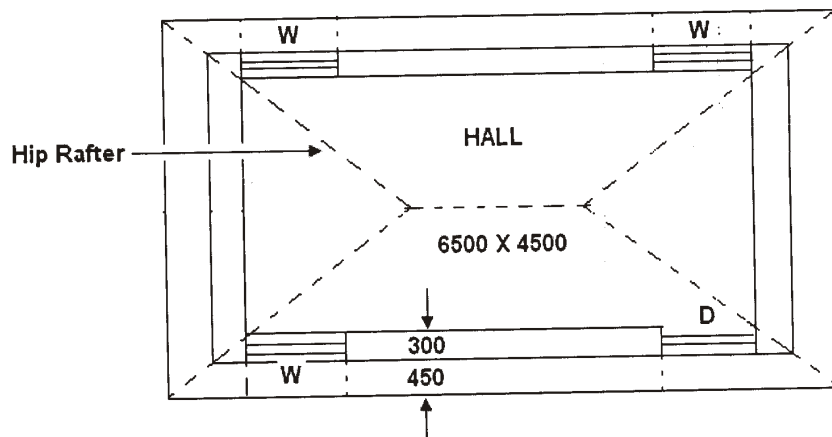

Fig. 2

PART—B

10×5=50

Instructions : (1) Answer *any* **five** questions.

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

(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. *(a)* Mention any four duties of quantity surveyor or estimator.

(b) What is meant by specification? State its types and necessity.

12. A road is proposed to be constructed in embankment with the following data :

> Formation width of road = 8 m
> Side slopes in embankment = 2 : 1

The ground levels along the centre line of the road are given below :

RL of the ground (in m)	98·2	97·8	98·0	98·4	98·5	98·3	98·9
Chainage (in m)	0	30	60	90	120	150	180

The formation level may be taken as 100 m constant for 0 m to 180 m chainages. Calculate the quantity of earthwork by *(a)* trapezoidal formula and *(b)* prismoidal formula.

13. Calculate the live and dead storage of a reservoir with the following data using *(a)* trapezoidal formula and *(b)* prismoidal formula :

Sl. No.	Level (m)	Area (m^2)	Particulars
1	100	2400	Bed level
2	105	2800	—
3	110	3700	Sill level
4	115	5400	—
5	120	8800	—
6	125	12600	FTL
7	130	27000	MWL

14. Prepare a rough estimate of a proposed commercial complex in the corporation limits for the following :

> Plinth area = ₹ 400 sq.m/floor
> Height of each storey = 3 m
> No. of stories = G + 5 floors
> Cubic content rate = ₹ 3,000 per cubic m

Provide the following provisions as percentage of building cost :

(1) WS and sanitary arrangements—8%

(2) Electrification—6%

(3) Fluctuation of rates—5%

(4) Contractors profit—10%

(5) PS and contingencies—3%

15. Explain the methods of preparing approximate estimates.

16. Calculate the quantity of steel required for the steel struss as shown in Fig. 3 below :

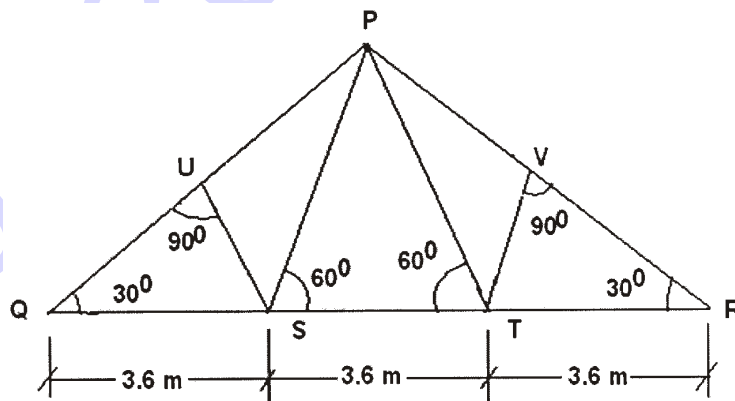*(a)* Main members at 56 N/m

(b) Struts at 45 N/m

Fig. 3

17. Prepare the detailed estimate for the following items of work from the plan and section shown in the Fig. 4 below :

(a) Earthwork excavation for foundation

(b) Plastering in CM (1 : 4) for external walls including parapet without deductions
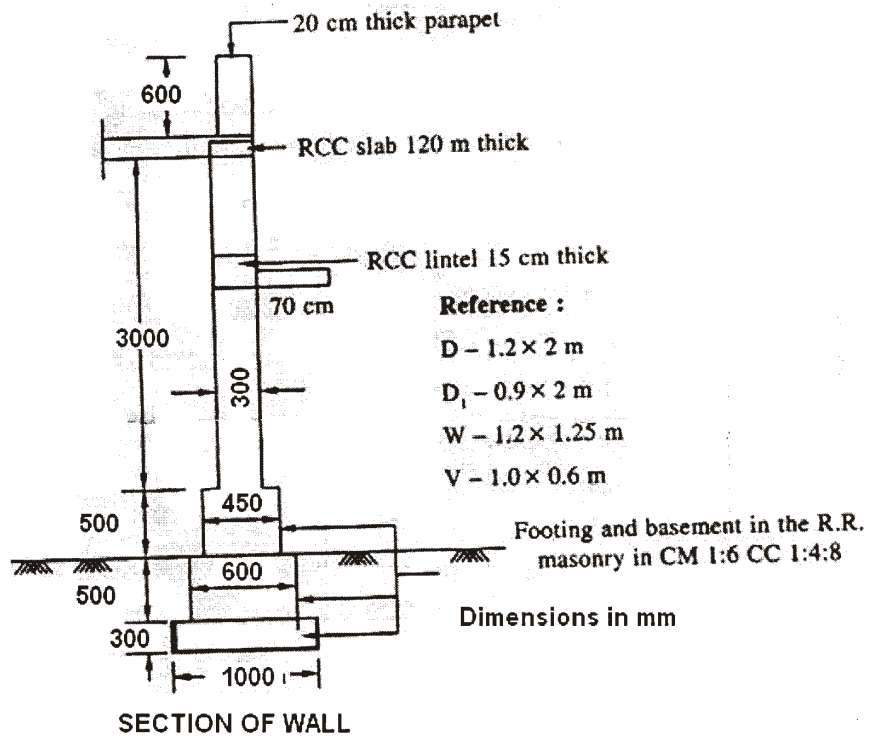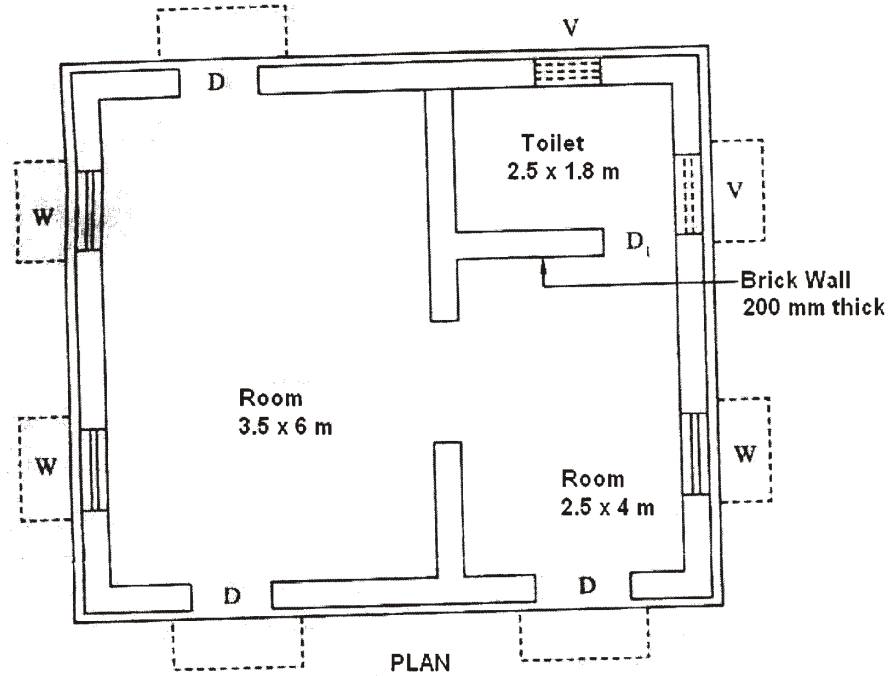

PLAN

20 cm thick parapet

600

RCC slab 120 m thick

RCC lintel 15 cm thick

70 cm

Reference :

D – 1.2 × 2 m

D₁ – 0.9 × 2 m

W – 1.2 × 1.25 m

V – 1.0 × 0.6 m

3000

300

450

Footing and basement in the R.R. masonry in CM 1:6 CC 1:4:8

500

600

Dimensions in mm

500

300

1000

SECTION OF WALL

Fig. 4

18. Prepare the detailed estimate for the following items of work shown in Fig. 5 below :

(a) RR masonry in footings

(b) Brick masonry in CM (1 : 6) for superstructure excluding parapet and without deduction for doors and windows and lintels

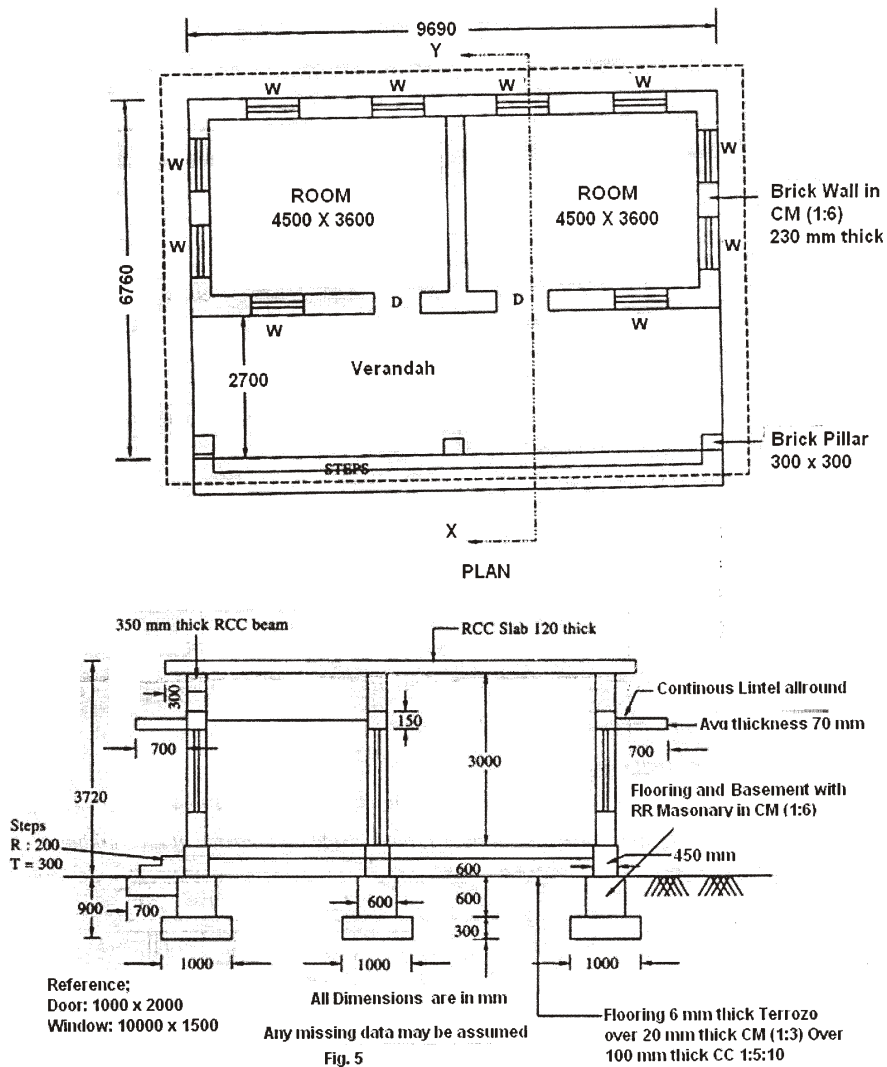*(c)* RCC roof slab (1 : 2 : 4) 100 mm thick

PLAN

Reference;
Door: 1000 x 2000
Window: 10000 x 1500

All Dimensions are in mm

Any missing data may be assumed
Fig. 5

Fig. 5

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