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C14–C–403

4421

BOARD DIPLOMA EXAMINATION, (C–14)

MARCH/APRIL—2018

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. Define quantity surveying and state two objects of preparing an estimate of a work. 1+2=3

2. State the units of measurements of the following items of work : 1×3=3

(a) RR/Brick masonry for foundation, basement and super-structure

(b) Filling basement with sand

(c) AC sheet roofing/tiled roofing

3. Define the terms used in the earthwork calculations : 1½+1½=3

(a) Borrow pits

(b) Spoil bank

4. Find the quantity of earthwork for 1 km length of road, the formation width of road is 8 m. Side slopes of embankment is 1 5 : 1, depth of embankment is 1·5 m. 3

5. Define the terms lead and lift for the formation of roads and give the values of initial lead and initial lift. 1½+1½=3

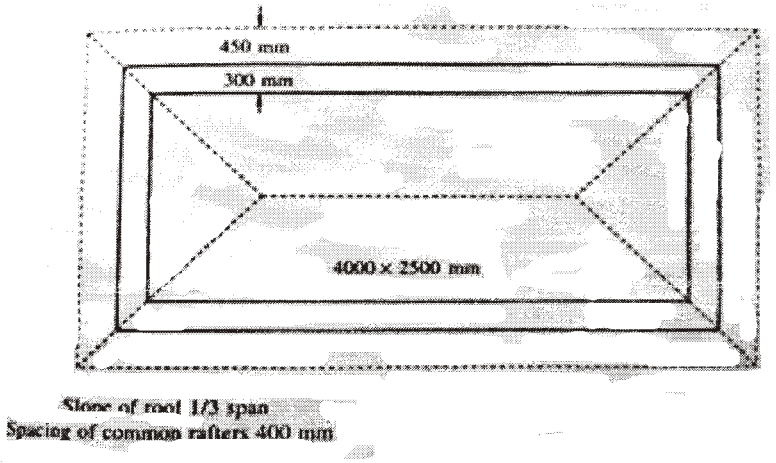
6. What is an approximate estimate? How is it prepared? 1½+1½=3

7. Calculate the quantity of cement concrete 1 : 1 5 : 3 required for RCC lintels over doors and windows of a residential building. There are 6 doors of size 1 2 m 2 10 m and 8 windows of size 1 10 m 1 80 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. 3

8. From the accompanying figure shown below of sloped roof, calculate the—

(a) length of common rafter;

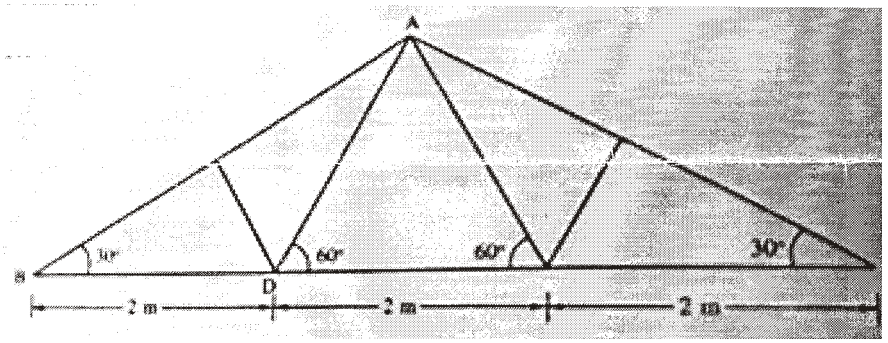
(b) length of the ridge piece. 1½+1½=3



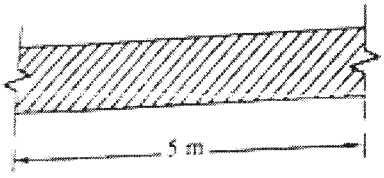
9. From the simple steel truss shown in figure, find the steel required for the following : 1½+1½=3

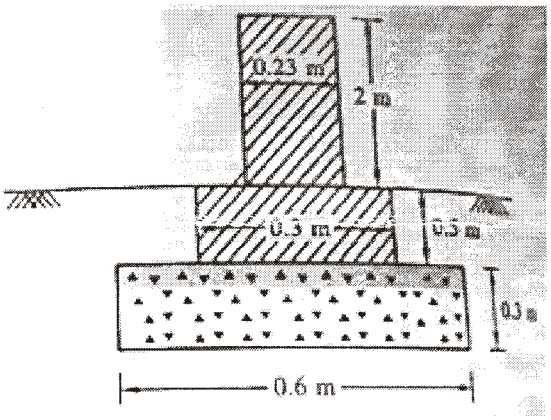
(a) Principal rafter AB @ 0·108 kN/m

(b) AD @ 0·054 kN/m



10. The figure shows the plan and section of a part of a compound wall. Calculate the quantity of brick masonry required for footing and wall. 1½+1½=3





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)* State any five general specifications of earthwork excavation.

(b) Write any five general specifications of brick/stone masonry with cement mortar. 5+5=10

12. The contour areas are given below for a tank and the contours are taken at an interval of 1 m. The bed level of the tank is at a contour of 92 m. It is to be filled up to a level of 98 m. Compute the earthwork by

(a) trapezoidal formula

(b) prismoidal formula 5+5=10

Contour levels	92	93	94	95	96	97	98
Area of contour (in sq. km)	100	110	115	125	135	140	150

13. The road has the following data :

Chainage (in m)	0	30	60	90	120
GL (in m)	30·50	31·25	31·75	32·50	33·00

The formation level at chainage zero is 32 m and having a rising gradient of 1 in 100. The top width is 10 m and the side slope 2 horizontal to 1 vertical. Assuming the transverse slope is level. Calculate the volume of earthwork by *(a)* trapezoidal rule and *(b)* prismoidal rule. 5+5=10

14. Prepare an estimate of a proposed building having plinth area 350 m^2 : 10

(a) Plinth area rate ₹ 1,500 per m^2

(b) Add for water supply and sanitary fittings @ 1·25%

(c) Add for electrification @ 7·5%

(d) Add for architectural treatment @ 2%

(e) Add for unforeseen items @ 3%

(f) Add for fluctuation of rates @ 5%

(g) Add for petty supervision charges @ 3%

15. Prepare a rough estimate for a proposed commercial complex for a municipal corporation for the following data : 10

Plinth area 500 m^2/floor

Height of each floor 3 m

No. of floors ground floor + 2

Cubical content rate ₹ 1,000/per m^3

Provisions are given below :

(a) Water supply and sanitation 8% of building cost

(b) Electrification 6% of building cost

(c) Fluctuation of rates 5% of building cost

(d) Contractors margin 10% of total cost

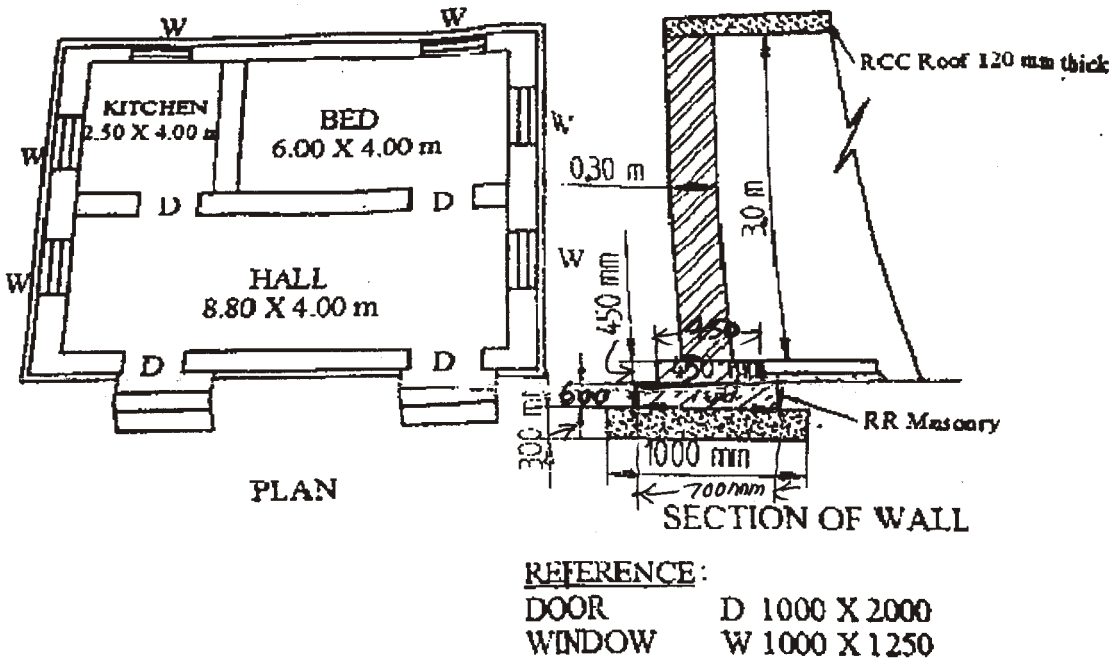
(e) Petty supervision and contingencies 3% of total cost

16. Prepare the detailed estimate for the following items of work for the building shown in figure : 3+3+4=10

(a) CC (1 : 4 : 8) for foundation bed

(b) Brick masonry for superstructure walls without deductions

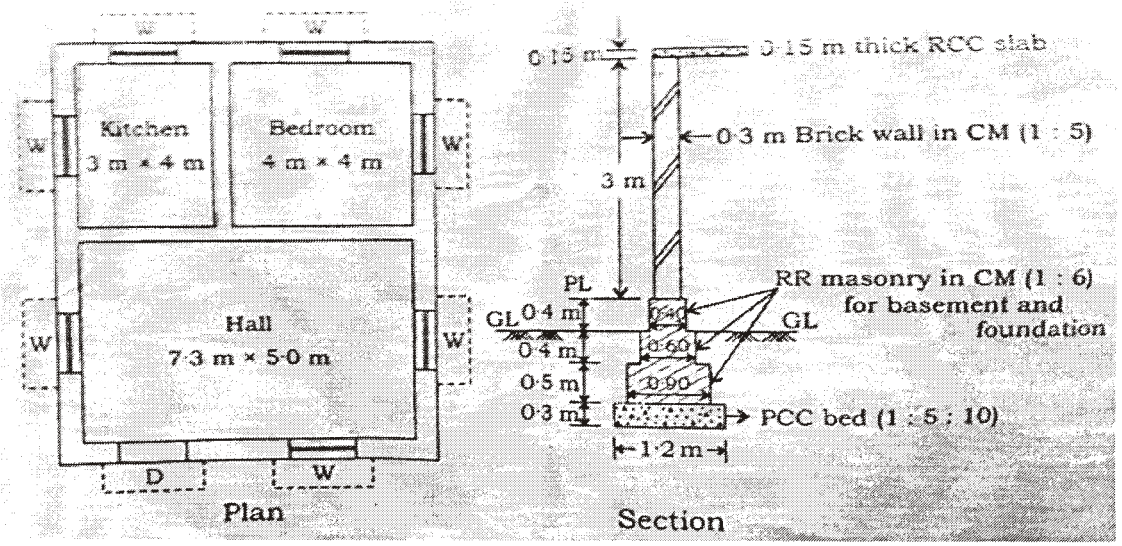
(c) RCC for roof slab 120 mm thick



REFERENCE :

DOOR	D 1000 X 2000
WINDOW	W 1000 X 1250

17. Prepare the detailed estimate for the following items of work form figure : 10

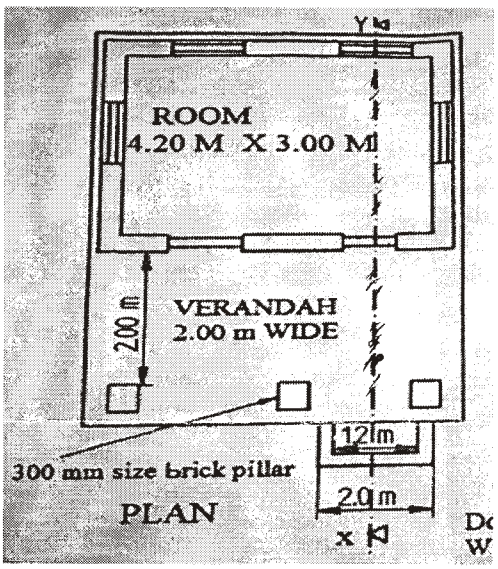


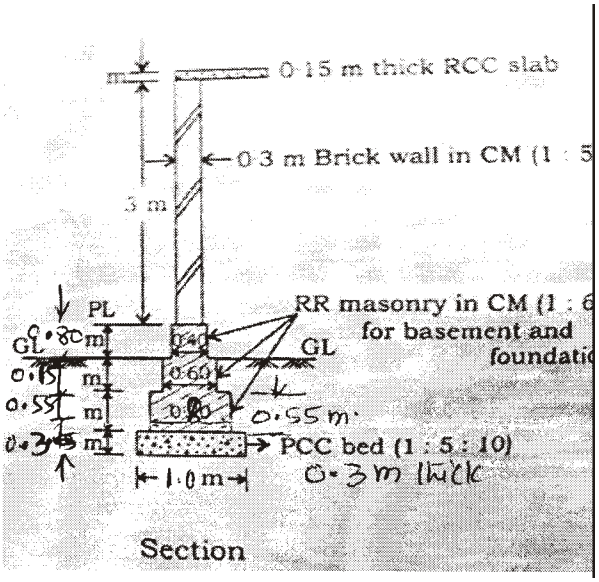
(a) Earthwork excavation for foundation

(b) Brick masonry in CM (1 : 5) without deductions

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

18. Prepare the detailed estimate for the following items of work form figure : 4+3+3=10





(a) Earthwork excavation for foundation in hard gravelly soils

(b) RR masonry in CM (1 : 6) for footing and basement

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