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BOARD DIPLOMA EXAMINATION, (C-09)

OCT/NOV—2016

DCE—FOURTH SEMESTER EXAMINATION

QUANTITY SURVEYING

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 the units of measurements of the following items : 1×3=3

(a) Doors

(b) Weatherproof course

(c) RCC for slab

2. Prepare the approximate cost of a proposed building with the following data :

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(i) Plinth area—95 sq.m

(ii) Plinth area rate—₹ 12,000 per sq.m

(iii) Electrification at 8% of the cost of building

(iv) Water supply and sanitation—12% of the cost of building

(v) Architectural features—1½% of the cost of building

(vi) Unforeseen charges—2% of the cost of building

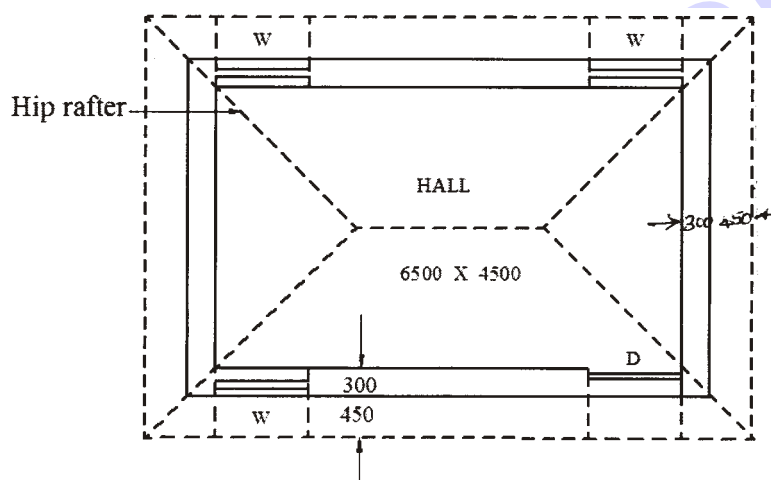
(vii) PS and contingencies—3% of the cost of building

3. The internal dimensions of a room are 6.25 m \times 4.25 m with 230 mm wall thickness. Find the quantity of sand filling in basement, if the height and width of basement are 750 mm and 450 mm respectively.

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4. For a hipped roof shown in the figure below, calculate the (a) length of common rafter and (b) number of common rafters spaced at 500 mm c/c, if the rise of roof is $\frac{1}{3}$ of span :

$$1\frac{1}{2} + 1\frac{1}{2} = 3$$

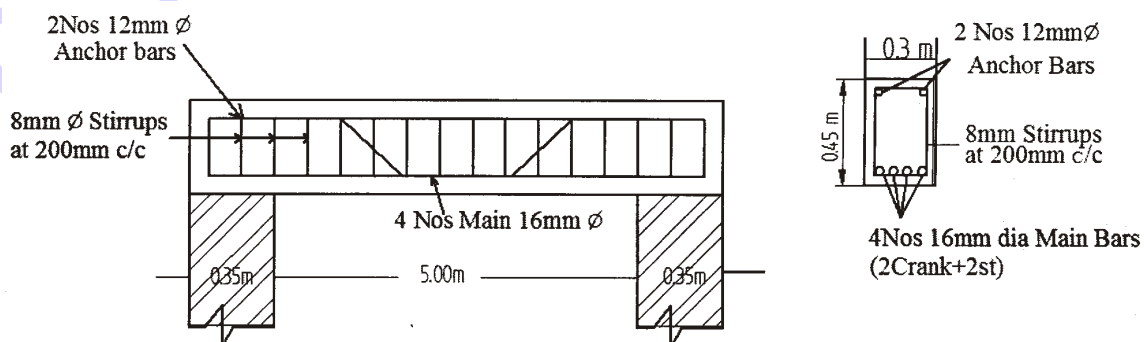


(All dimensions are in mm)

5. Write the multiplication factors of metal track (MT), cart track (CT) and sandy track (ST).

$$1 \times 3 = 3$$

6. Calculate the quantity of steel required for main bar shown in the figure below. Assume top and bottom clear cover as 20 mm, end cover as 40 mm. Weight of 16 mm bar is 1.58 kg/m :

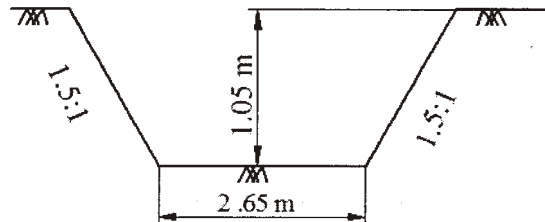


[Use Tor steel : Hooks are not necessary (HYSD bars)]

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7. Determine the quantity of earthwork in cutting in a certain reach of canal having length 35 m for the following cross-section (side slopes $1\frac{1}{2} : 1$) :

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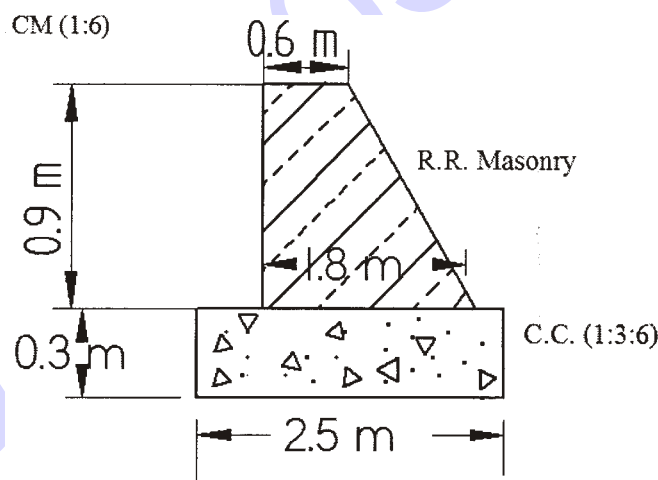


8. The cross-section of an abutment is shown in the figure below. Calculate the quantities for the following items for the length of 15 m :

$1\frac{1}{2} + 1\frac{1}{2} = 3$

(a) CC (1 : 3 : 6) for foundation

(b) RR masonry in CM (1 : 6)



9. Write a short note on depreciation.

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10. The cost of a building including cost of land is ₹ 1,00,000. The owner expects 10% return. If the expenditure on all outgoings including sinking fund is ₹ 5,000, find the gross rent of property per month.

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PART—B

10×5=50

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

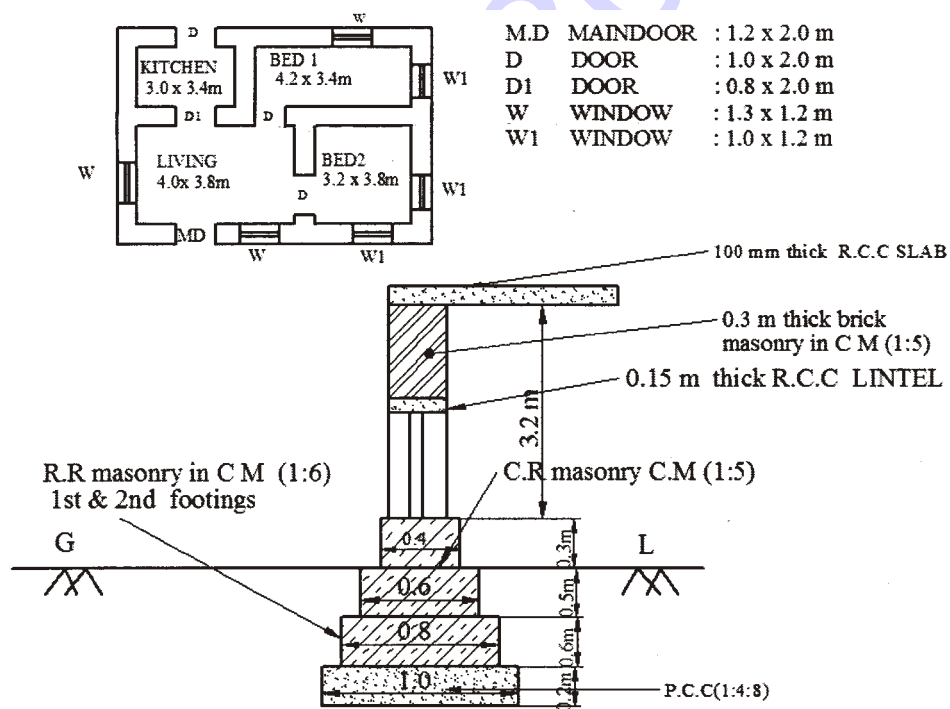
(2) Each question carries **ten** marks.

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

11. Prepare the detailed estimate for the following items of work for the building shown in the figure below : 5+5=10

(a) Earthwork in excavation for foundation

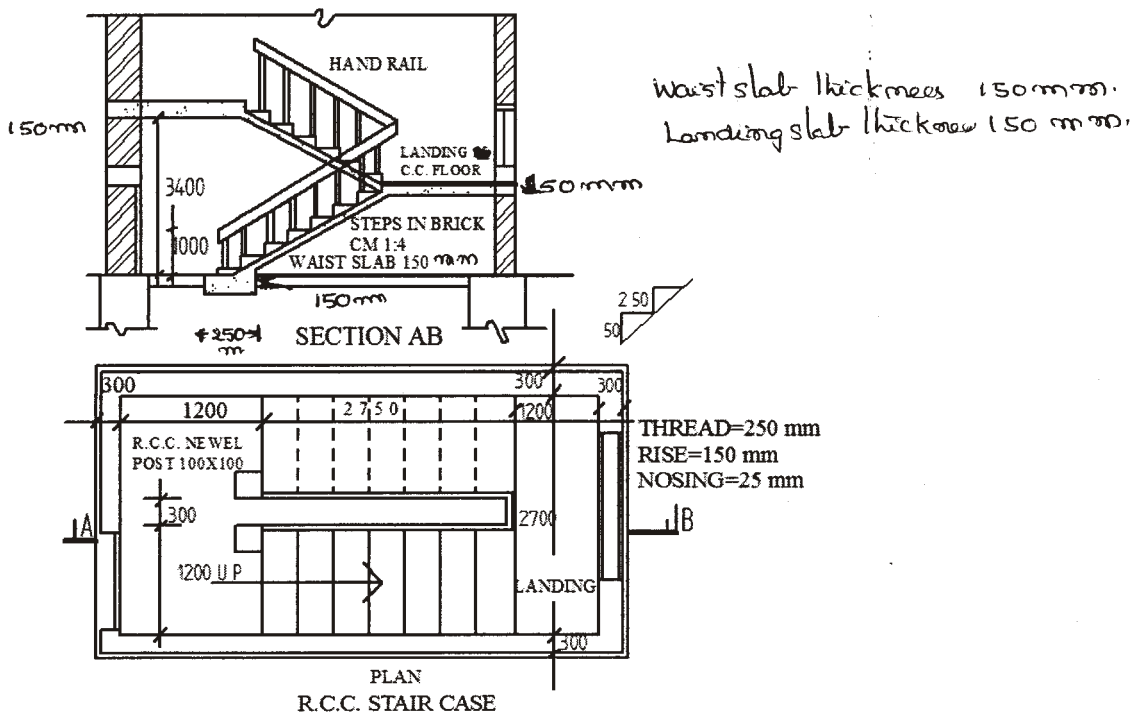
(b) RR masonry for 1st and 2nd footings



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12. For an RCC staircase shown in the figure below, calculate the following quantities : 10

- (a) RCC (1 : 2 : 4) for base beam, waist slab, top and intermediate landings
(b) Brickwork in CM (1 : 4) for steps



13. Calculate the cost of the following items of work using the lead statement given below : 5+5=10

- (a) CC for foundations (1 : 5 : 10) using 40 mm HBG metal unit 1 m³ :

0.92 m ³	40 mm HBG metal
— cu.m	Sand
— cu.m	Cement
0.2 Nos.	Mason
3.2 Nos.	Mazdoor
LS	Sundries

- (b) First class brickwork in CM (1 : 8) unit—1 cu.m :
- | | |
|-----------|--------------------|
| 500 Nos. | First class bricks |
| 0.38 cu.m | CM (1 : 8) |
| 1.40 Nos. | Brick layers |
| 2.80 Nos. | Mazdoor |
| LS | Sundries |

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Labour charges :

Mason/Brick layer	₹ 70/day
Mazdoor	₹ 40/day
Mixing charges of cement mortar	₹ 10/cu.m

Lead statement :

Sl. No.	Materials	Rate at sources (in ₹)	Leads (in km)	Conveyance charges
1	40 mm HBG metal	250/cu.m	12 km MT + 10 km CT	₹ 6/km/cu.m
2	Sand	75/cu.m	6 km MT + 5 km ST	₹ 4/km/cu.m
3	Bricks	900/1000 nos.	6 km MT	₹ 5/km/1000 nos.
4	Cement	2,500/tonne	At site	

- 14.** Prepare the data sheet and calculate the cost of the items given below using lead statement : 5+5=10

(a) Brick masonry in CM (1 : 6)—1 cu.m

(b) CC (1 : 3 : 6) using 40 mm HBG metal—1 cu.m

Materials and labour required :

CC (1 : 3 : 6) using 40 mm HBG metal		Brick masonry in CM (1 : 6)	
0.92 cu.m	40 mm HBG metal	512 Nos.	Bricks
—	Sand	0.20 cu.m	CM (1 : 6)
—	Cement	1.4 Nos.	Masons
0.2 Nos.	Masons	0.70 Nos.	Men Mazdoors
1.8 Nos.	Men Mazdoors	2.1 Nos.	Women Mazdoors
1.4 Nos.	Women Mazdoors	1.0 cu.m	Scaffolding
LS	Sundries	LS	Sundries

Lead statements for materials :

Sl. No.	Materials	Rate (in ₹)	Per	Leads	Conveyance charges
1	40 mm HBG metal	306.70	1 cu.m	15 km	₹ 4.00/ km/ m ³
2	Sand	75.00	1 cu.m	09 km	₹ 3.00/ km/ m ³
3	Cement	3,400	1 MT	Local	—
4	Bricks	2,500	1000 nos.	12 km	₹ 3.00/km/1000 nos.

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Labour charges :

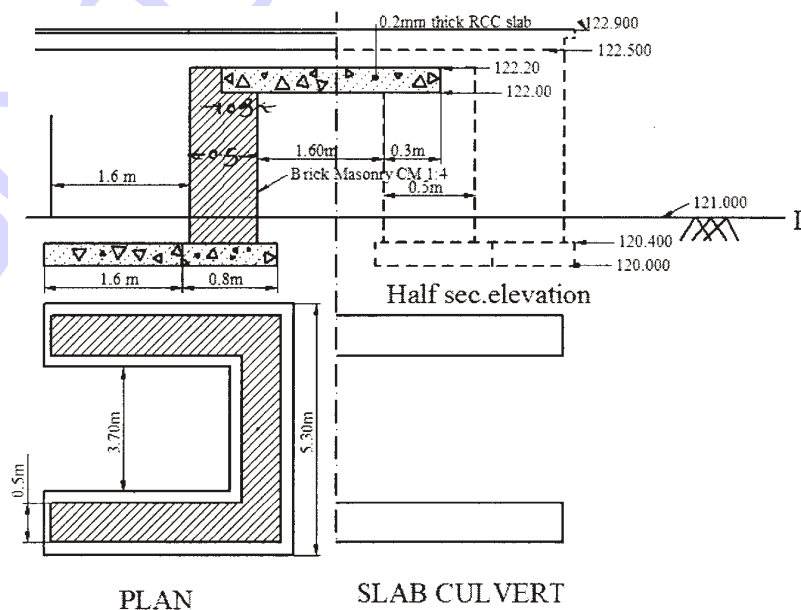
Masons	: ₹ 266.00/day
Men Mazdoors	: ₹ 216.00/day
Women Mazdoors	: ₹ 206.00/day
Scaffolding charges	: ₹ 45.00/cu.m.
Mixing charges	: ₹ 30.00/cu.m

15. The contour areas of a reservoir are given below. Calculate the dead and effective capacity of the reservoir : 10

Levels (in m)	Areas (in sq.m)
10.0	10500 bed level
11.0	13200
12.0	20600 sill level
13.0	35000
14.0	40200
15.0	60700
16.0	72400
17.0	90300 FTL
18.0	99300 MWL

16. Prepare the detailed estimate for the following items of work for a slab culvert shown in the figure below : 5+5=10

- (a) Brick masonry in CM (1 : 4) for abutment and returns
(b) RCC (1 : 2 : 4) for deck slab

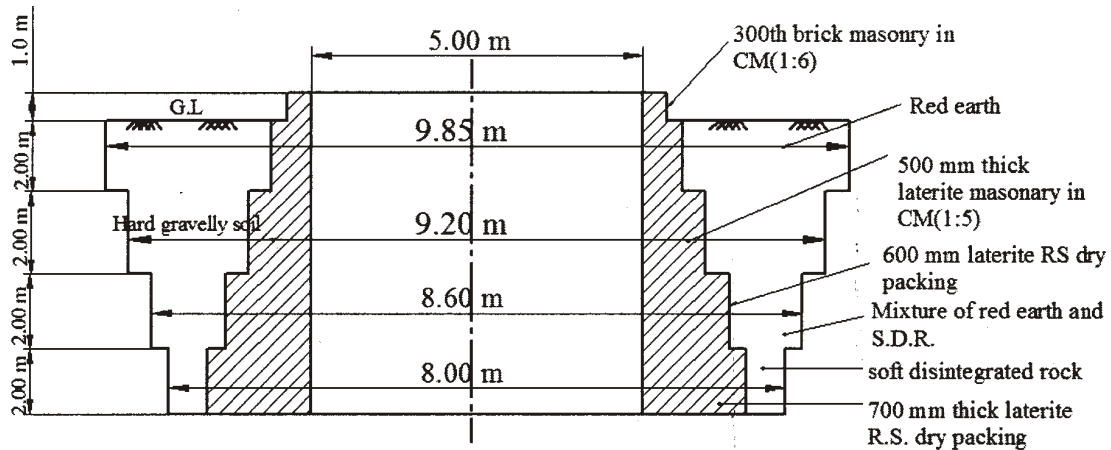


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17. For an open well shown in the figure below, calculate—

- (a) quantity of earthwork excavation in all matters;
- (b) quantity of laterite rough stone dry packing in bottom matres;
- (c) quantity of brick masonry in CM (1 : 6) for parapet wall :

$$4+4+2=10$$



Section of open well

OPEN WELL

18. A residential building of 220 sq.m plinth areas is situated on a plot measuring 450 m². The building is let out for a rent of ₹ 6,000 per month. The cost of the land is ₹ 3,000 per m² and the following data pertain to the outgoings :

- (i) Municipal tax is 8% of gross rent
- (ii) Repair, maintenance 10% of gross rent including insurance expenses
- (iii) Sinking fund is to be provided at 4% compound interest

Calculate the the capitalized value of the property for 6% net yield assuming the useful life of the building as 75 years. Assume the plinth area rate as ₹ 10,000 per m².

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