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C14–C–503

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BOARD DIPLOMA EXAMINATION, (C–14)
MARCH/APRIL—2018
DCE—FIFTH SEMESTER EXAMINATION

QUANTITY SURVEYING—II

Time : 3 hours] [*Total Marks* : 80

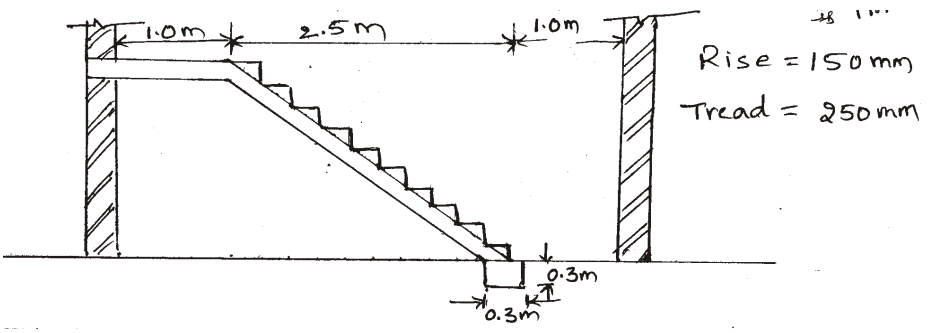
PART—A 3×10=30

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. Estimate the quantity of brick work in CM (1 : 4) for steps for two flights in staircase room 4·5 m × 2·0 m drawing for one flight as shown below, width of steps in each flight is 1 m :



2. Write about different methods of estimation of steel required for RCC work involved in building.

3. Calculate the total weight of stirrups of 6 mm dia for a simply-supported beam of size 300 mm × 300 mm. The spacing of stirrups is 210 mm c/c, total length of beam is 4·5 m and unit wt of rod is 0·23 kg/m. Concrete cover at ends of bars and sides 40 mm and that of top and bottom is 30 mm each.

4. Define analysis of rates and explain its purpose.

5. Explain the following terms :

(a) Blasting charges

(b) Stacking charges

(c) Crushing charges

6. Calculate the quantity of cement required in bags for the following items of work :

(a) Brick masonry in CM (1 : 5) for 12 m^3 of work, if 0·40 m^3 of CM is required for 1 m^3 of brick masonry.

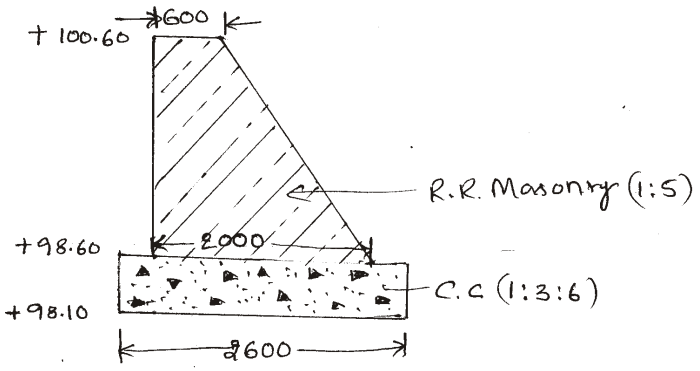
(b) PCC (1 : 5 : 10) using 40 mm size HBG metal for 80 m^3.

7. A gravel road of length 1200 m and the top width of formation is 7·5 m. Side slopes 2 : 1 on either side. The height at 0·0 m is 0·50 m and at 1200 m is 0·80 m. Calculate the quantity of earth for formation.

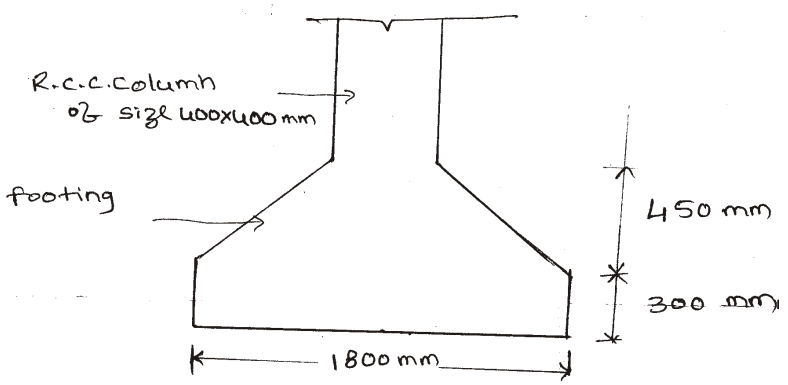
8. Calculate the following quantities for abutment of a culvert as shown in figure. Take the length of the abutment as 3·0 m. :

(a) CC (1 : 3 : 6) bed under abutment

(b) RR masonry used in abutment



9. An RCC square column footing of a overhead tank as shown in figure. Calculate the cement concrete quantity for the footing.



10. List the various items to be included in the abstract estimate of a tank sluice with tower head.

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.

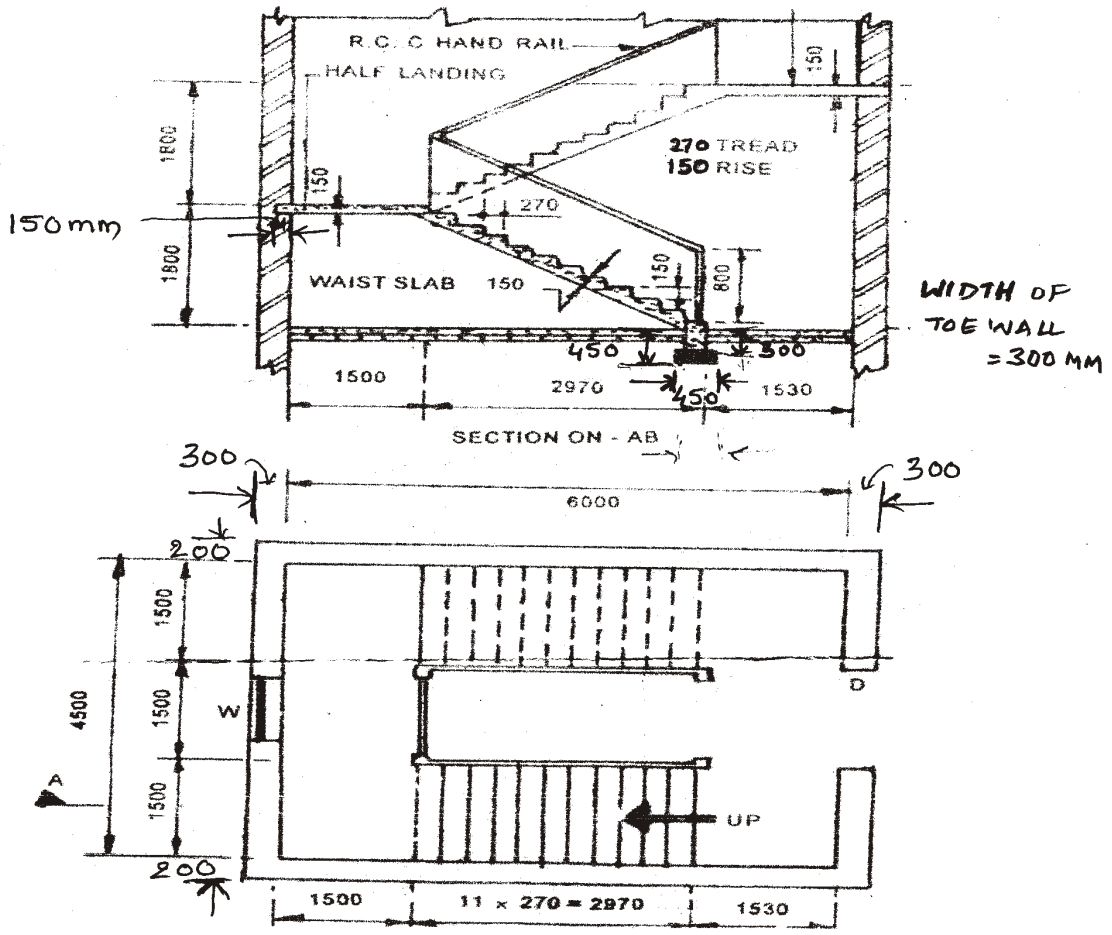
11. Calculate the quantities of the following items of work for an open well staircase as shown in figure below :

(a) CC (1 : 5 : 10) with 40 mm HBG metal for toe wall

(b) RCC (1 : 1·5 : 3) with 20 mm HBG metal for toe wall, waist and landing slab

(c) Brick masonry in CM (1 : 5) for steps

(d) Plastering in CM (1 : 4) for steps and waist slab



12. Work out quantity of reinforcement for the RCC lintel of 230 mm wide and 200 mm deep is used for a clear span of 1·75 m and has bearing of 230 mm on the walls either side. Main bars in the tension zone are Fe 415 grade 3 bars of 12 mm dia. Of which one bar is cranked through 45° at L/7 from either ends. 2 no's anchor bars of 10 mm dia at top. Two-legged stirrups of 6 mm dia. at 150 mm c/c are provided throughout weight of rods are 12 mm dia–0·89 kg/m, 10 mm dia–0·61 kg/m, 6 mm dia–0·23 kg/m.

Assume all-round clear cover as 20 mm.

13. Prepare a data sheet and calculate the cost of the items given below using lead statement :

(a) CC (1 : 4 : 8) using 40 mm size HBG metal—1 m^3

(b) Plastering with CM (1 : 6), 12 mm thick for 10 m^2

Materials and labour required for 1 m^3 :

CC (1 : 4 : 8)	Plastering with CM (1 : 6) for 10 m^2
0·92 m^3 HBG metal 40 mm size	0·15 m^3 cement mortar (1 : 6)
... m^3 sand	1·1 nos. mason
... m^3 cement	0·5 nos. man mazdoor
0·20 Nos. masons	1·1 nos. women mazdoor
1·8 Nos. man mazdoor	LS sundries
1·4 Nos. woman mazdoor	
LS sundries	

Lead statement of material :

S.no.	*Materials*	*Rate*	*Per*	*Lead*	*Conveyance charges*
1.	40 mm HBG metal	410–00	1 m^3	12 km	₹ 12–00/m^3 /km
2.	Sand	120–00	1 m^3	5 km	₹ 10–00/m^3 /km
3.	Cement	4500	1 tonne	5 km	₹ 20–00/Tonne/km

Labour charges :

Masons = ₹ 420 per day

Man mazdoor = ₹ 320 per day

Woman mazdoor = ₹ 320 per day

14. Prepare the detailed cum abstract estimate for the following items of work for building as shown in figure.

(a) Earthwork excavation for foundation

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

(c) Brick masonry in CM (1 : 6) for footings, basement and super-structure walls

(d) RCC (1 : 1·5 : 3) for roof slab, lintels over openings

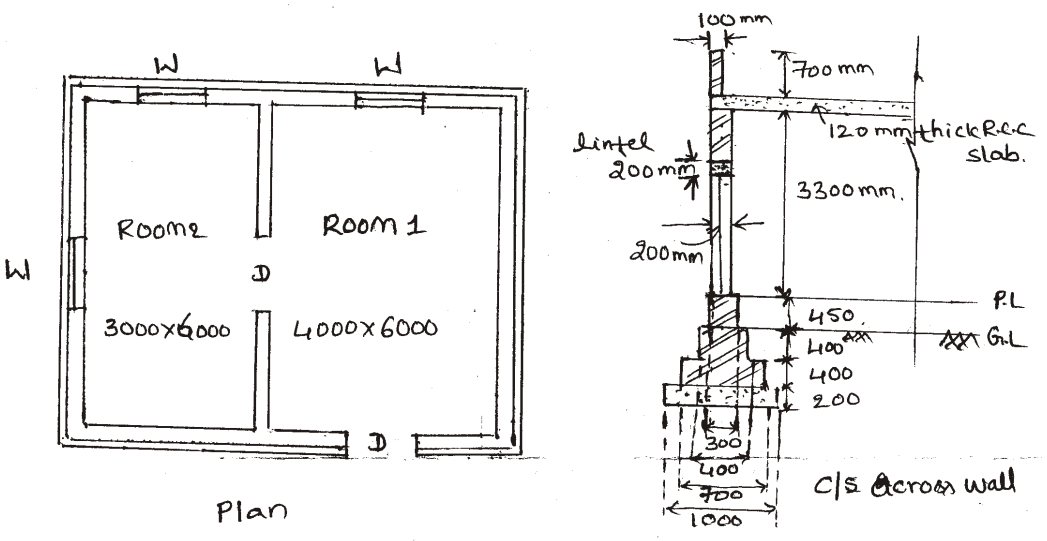
Assume bearing of lintel over the walls on either side = 150 mm

Adopt the following rates :

Sl. no.	*Description of item*	*Rate*	*Per*
1	Earthwork excavation	48–00	$1 m^3$
2	Cement concrete (1 : 4 : 8)	4500–00	$1 m^3$
3	Brick masonry in CM (1 : 6)	900–00	$1 m^3$
4	RCC (1 : 1·5 : 3)	6030–00	$1 m^3$

Assume D = 1200 mm × 2100 mm

W = 1200 mm × 1500 mm



15. Prepare the detailed estimate for the following items of work of a WBM road for a length of 500 m as shown in figure :

(a) Collection and supply of 65 mm HBG metal for base course

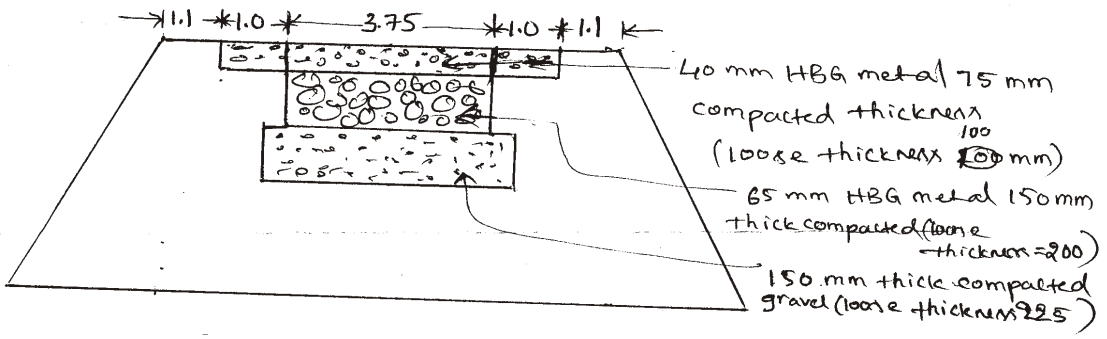
(b) Collection and supply of 40 mm HBG metal for wearing course

(c) Collection and supply gravel for base course and shoulders

(d) Spreading of 65 mm HBG metal

(e) Spreading of 40 mm HBG metal

(f) Spreading gravel for base course and shoulders



16. Prepare the detailed estimate of following items of work for slab culvert from figure :

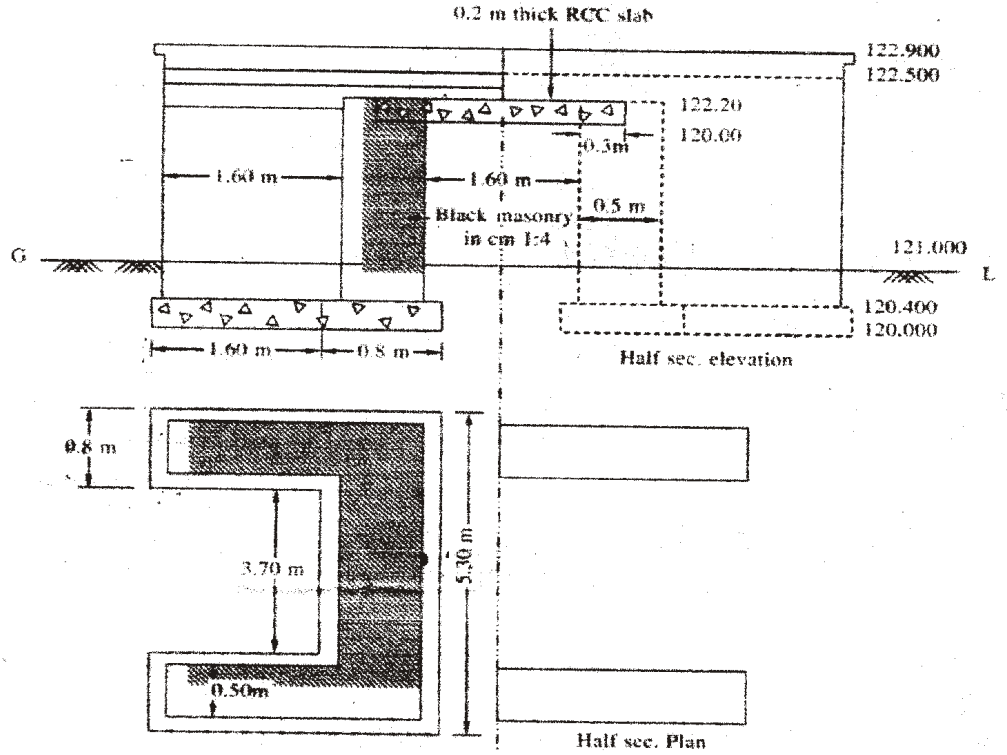
(a) Earthwork excavation for foundations

(b) CC (1 : 4 : 8) using 40 mm HBG metal for foundation bed

(c) Brick masonry in CM (1 : 4) for abutments and returns

(d) Plastering of abutments inside the vent

(e) RCC (1 : 1·5 : 3) for deck slab 200 mm thick and 300 mm bearing on either side

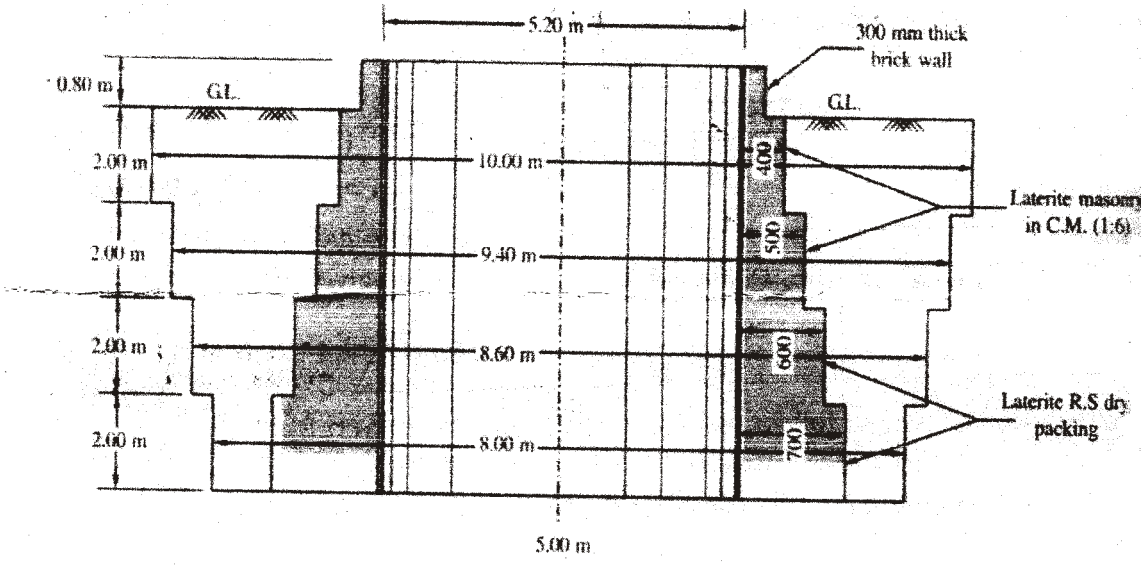


17. Calculate the quantities for the following items of work for an open well shown below :

(a) Earthwork excavation for open well

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

(c) Refilling the excavated soil around the steining



Open Well Section thro well

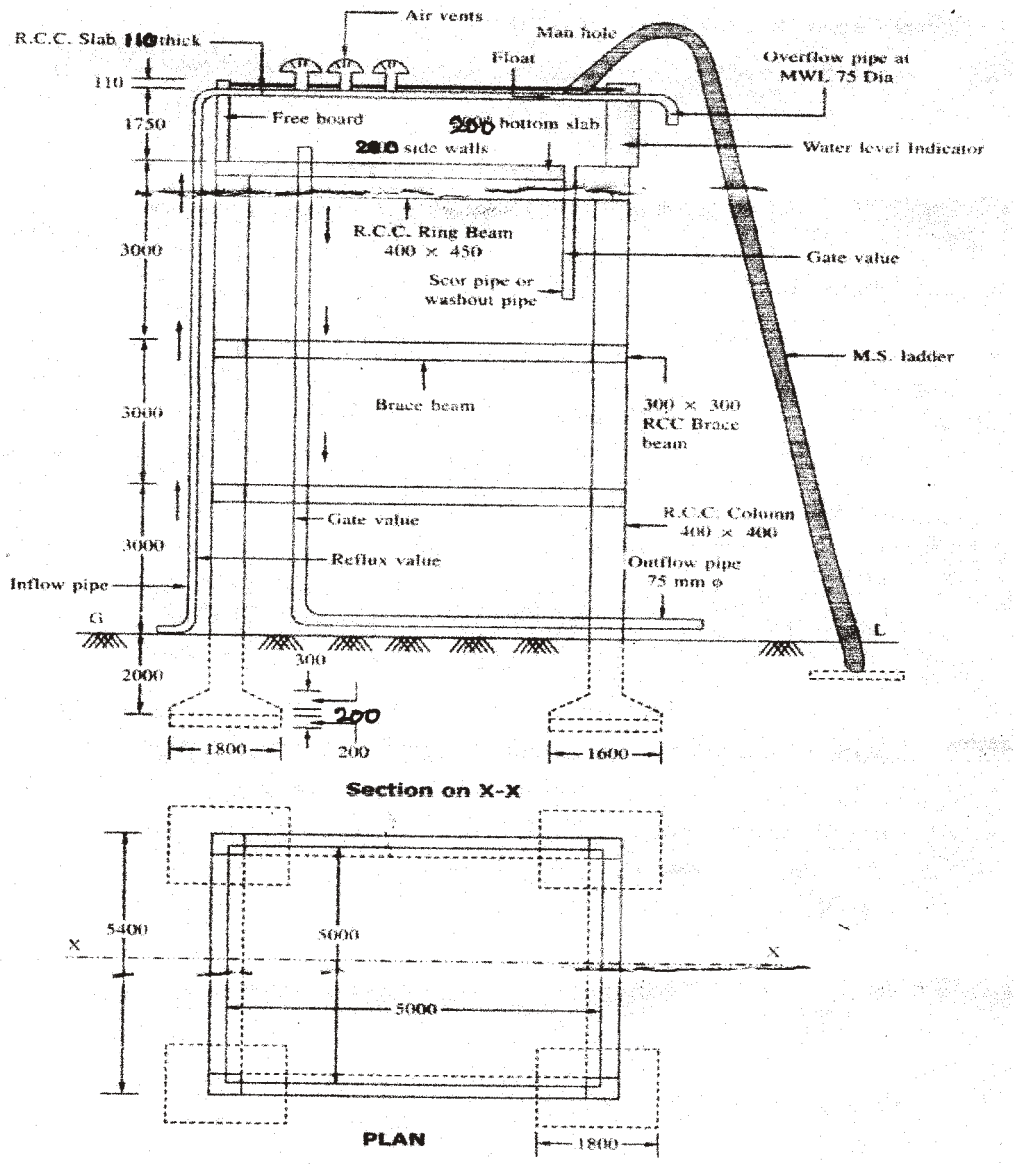
18. Prepare a detailed estimate of the following items of work from the overhead tank shown in figure below :

(a) Cement concrete (1 : 4 : 8) for column foundation

(b) RCC (1 : 2 : 4) for columns and brace beams above ground level

(c) RCC (1 : 2 : 4) for cover slab and bottom slab

(d) RCC (1 : 2 : 4) for ring beam and side walls of tank



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