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C14–C–503

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BOARD DIPLOMA EXAMINATION, (C–14)
SEPTEMBER/OCTOBER - 2020
DCE—FIFTH SEMESTER EXAMINATION

QUANTITY SURVEYING—II

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

PART—A 3×10=30

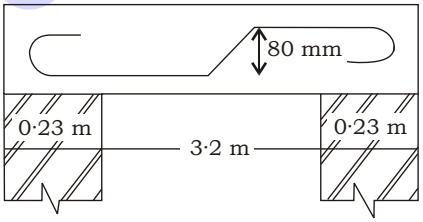
Instructions : (1) Answer **all** questions.

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

(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. State the types of half-turn staircase and draw the rough plan not scale and showing their component parts.

2. Calculate the length of a cranked (one-side) steel rod of 10 mm diameter, used in one-way slab, given the clear span of slab is 3·2 m, width of supports is 230 mm, thickness of slab is 130 mm :



3. Calculate the number of stirrups of 8 mm dia for a simply supported beam of size 200 mm × 350 mm. Spacing of stirrups is 200 mm centre to centre, total length of beam is 5·8 m. Assume end cover of 25 mm.

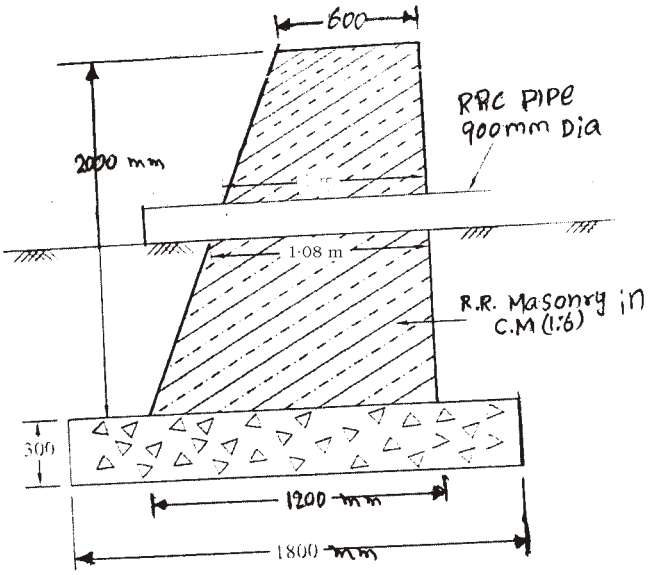
4. Write a short note on lead statement.

5. Determine the quantity of cement required for 5 cum of RCC (1 : 2 : 4) using 20 mm HBG metal.

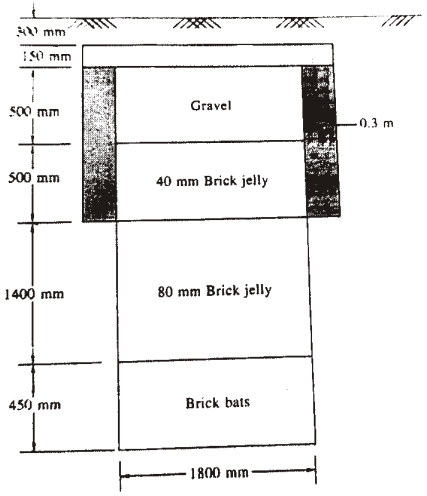
6. Calculate the quantity of cement required in bags for plastering work with CM 1 : 3 to RR masonry 40 sq.m. Thickness of plastering is 20 mm.

7. Prepare the detailed estimate for the earthen road of length 100 m of top width 7·5 m and bottom width 8·5 m, height of embankment 0·5 m from the ground.

8. The cross-section of a headwork of a pipe culvert is shown in figure. Determine the quantity of RR masonry in CM (1 : 6), if the length of head wall is 7·5 m, size of pipe is 0·9 m :



9. The cross-section of a soak pit of 1·8 m dia is shown in figure. Calculate the earthwork excavation for soak pit :



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.

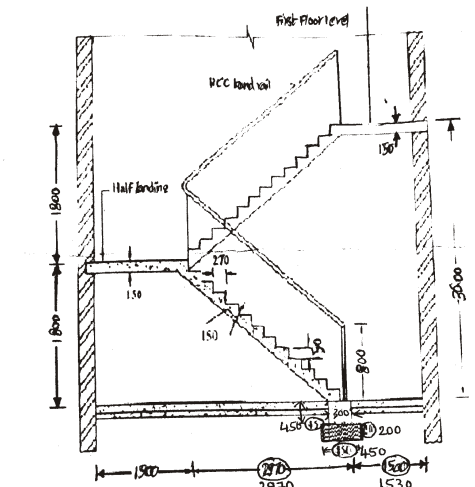
11. Calculate the quantities of the following items of work for an open well staircase as shown in figure below :

(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 land slab

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

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



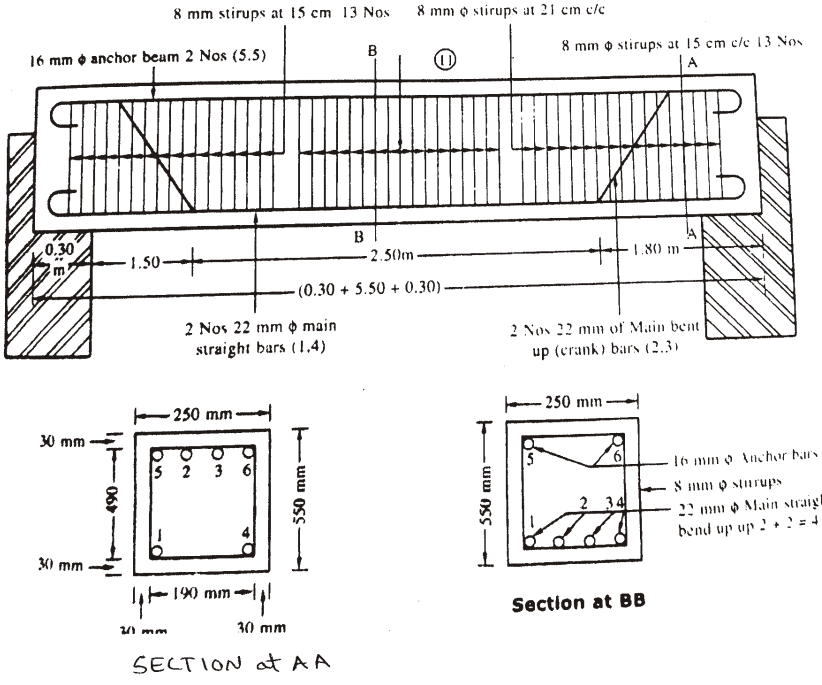
12. Work out the quantities of steel of RCC beam used over a clear span of 5·5 m. The walls supporting the beam are 450 mm thick and the beam has 300 mm bearing over the walls on both sides. The size of beam is 250 mm × 550 mm. Concrete cover at ends of bars and sides is 40 mm and that of top and bottom is 30 mm each. The reinforcement in beam is given below :

(a) Main straight bars at bottom marked as 1, 4 : 22 mm diameter—2 nos.

(b) Main bent up bars marked as 2, 3 : 22 mm diameter—2 nos.

(c) Top bars (anchor bars) marked as 5, 6 : 16 mm diameter—2 nos.

(d) Stirrup bars 8 mm diameter at both ends of 1·50 m long and including bearing on either side at 150 mm centre to centre and middle 2·5 m length at 210 mm centre to centre



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

(a) Plastering in CM (1 : 6), 12 mm thick—10 m^2

(b) RR masonry in CM (1 : 6)—1 m^3

Materials and labour required for 1 m^3 :

Plastering in CM (1 : 6)	RR Masonry in CM (1 : 6)
0·15 m^3 CM (1 : 6)	1·10 m^3 rough stone
0·10 No. mason	0·34 m^3 CM (1 : 6)
0·5 No. man mazdoor	1·8 Nos. masons
1·1 Nos. women mazdoors	0·7 No. man mazdoors
LS sundries	2·1 Nos. women mazdoors
	1·0 m^3 scaffolding charges
	LS sundries

Lead statement of material :

Sl.No.	*Materials*	*Rate* (in ₹)	*Per*	*Lead*	*Conveyance charges*
1.	Sand	75·00	1 m^3	9 km	₹ 3 per 1 km
2.	Rough stone	275·00	1 m^3	12 km	₹ 3 per 1 km
3.	Cement	3,400·00	1 MT	At site	—

Labour charges :

Mason = ₹ 266 per day

Men mazdoor = ₹ 216 per day

Women mazdoor = ₹ 206 per day

Scaffolding charges = ₹ 45 per m^3

Mixing charges = ₹ 30 per m^3

14. Prepare a data sheet and calculate the cost of the items of works :

(a) RR masonry in CM (1 : 5)—1 m^3

(b) Plastering with 20 mm thick in CM (1 : 4)—10 m^2

Materials and labour required for 1 m :

CM (1 : 4)	RR Masonry in CM (1 : 5)
0·21 cum-CM (1 : 4)	1·10 m^3 rough stone
0·66 No. mason 1st class	0·34 m^3 CM (1 : 5)
1·54 Nos. masons 2nd class	0·54 No. mason 1st class
0·50 No. man mazdoor	1·26 Nos. masons 2nd class
3·20 Nos. women mazdoors	1·40 Nos. men mazdoors
LS sundries	1·40 Nos. women mazdoors
	LS sundries

Labour charges per day :

Mason 1st class = ₹ 166

Mason 2nd class = ₹ 146

Man mazdoors = ₹ 116

Woman mazdoors = ₹ 116

Scaffolding charges for brick masonry = ₹ 30 per m^3

Mixing charges for CM (1 : 5) per m^3 = ₹ 30

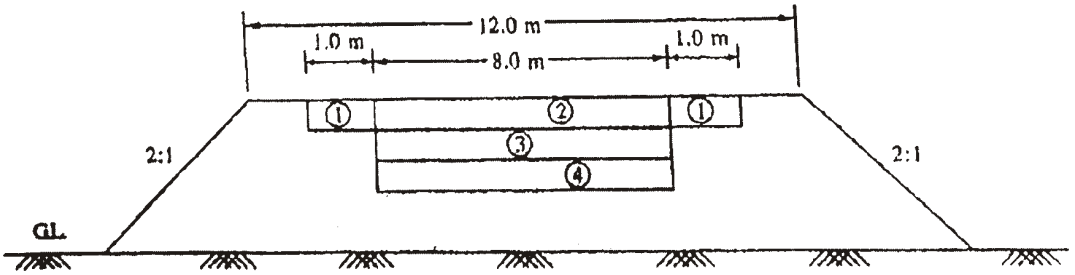
Sl .No.	*Material*	*Rate* (in ₹)	*Per*	*Lead*	*Conveyance charge*
1.	40 mm size HBG metal	322·00	1 m^3	10 km	₹ 2 per 1 km
2.	Sand	86·00	1 m^3	8 km	₹ 2 per 1 km
3.	Rough stone	275·00	1 m^3	5 km	₹ 3 per 1 km
4.	Cement	3,600·00	1 MT	Local	₹ 2 per bag

15. Prepare the detailed estimate of the following items of work for water bound macadam road as shown in the figure below for a length of 200 m :

(a) Collection and supply of gravel for shoulders of loose thickness 150 mm

(b) Collection and supply of 65 mm HBG metal for base course of loose thickness 150 mm

(c) Spreading of 40 mm HBG metal for wearing course of loose thickness 100 mm

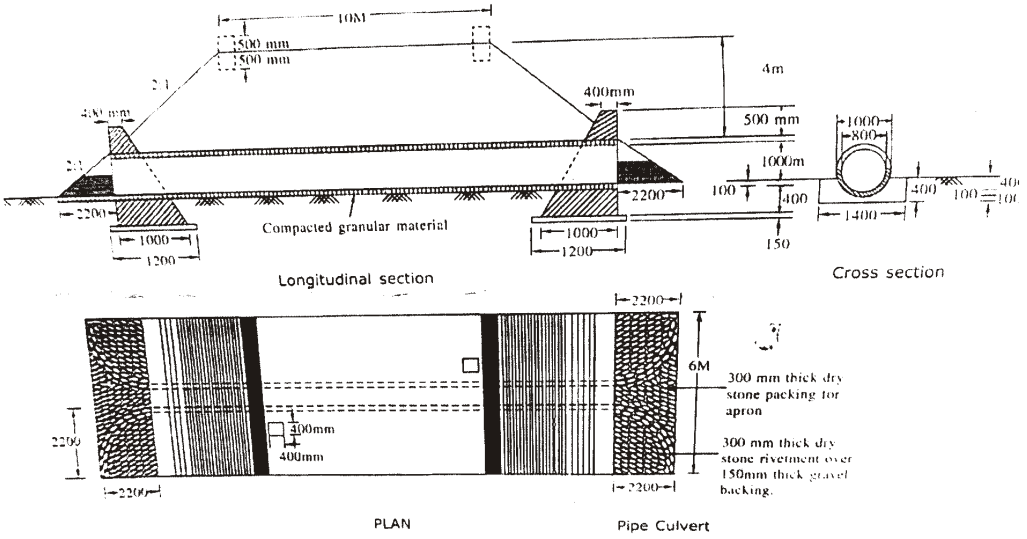


16. Calculate the following quantities from the drawing of a pipe culvert :

(a) The quantity of CC (1 : 3 : 6) under head walls

(b) The quantity of brick masonry in CM (1 : 6) for head walls

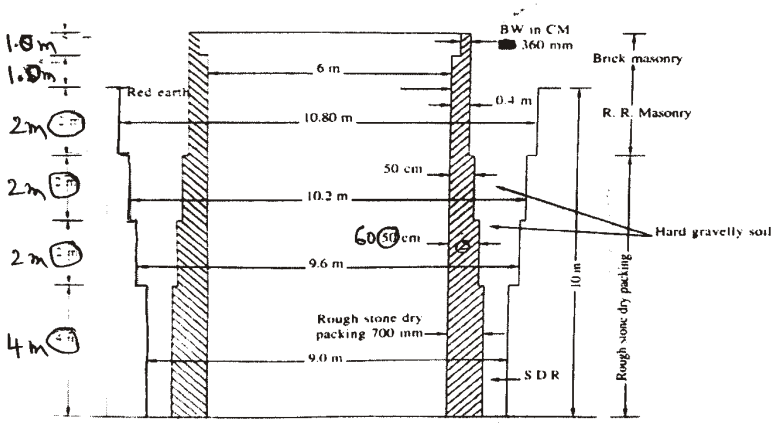
(c) RS dry packing 300 mm thick for side slopes



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

(a) Laterite rough stone dry packing and laterite masonry in CM (1 : 5) for steining

(b) Brick wall masonry in CM (1 : 5) and plastering with CM (1 : 5) above ground level



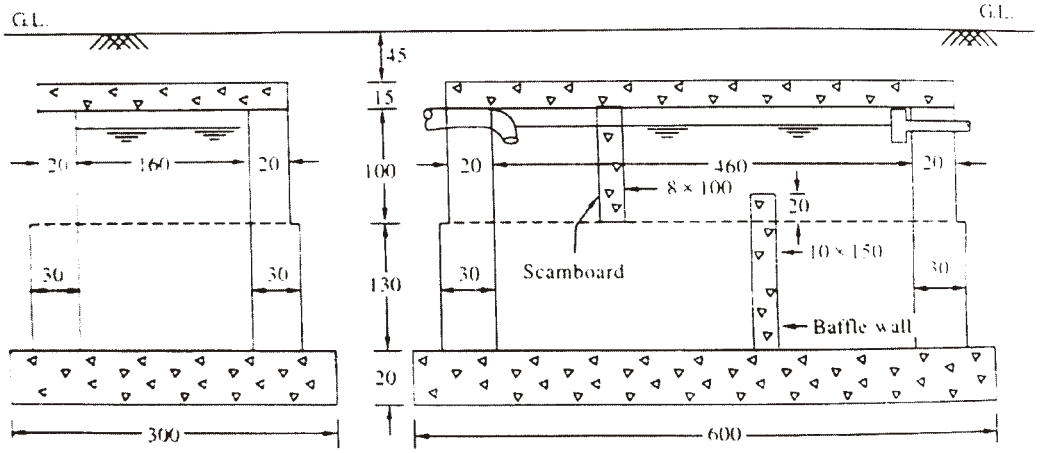
18. Calculate the quantities of the following items of a septic tank as shown in figure :

(a) Volume of earthwork excavation in m^3

(b) Volume of RCC slab for cover in m^3

(c) Cross-sectional area of baffle wall in m^2

(d) Cross-section of scum board in m^2



All dimensions are in cm

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