



c14-c-403

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**BOARD DIPLOMA EXAMINATION, (C-14)
SEPTEMBER/OCTOBER - 2020
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. List any three duties of quantity surveyor.

2. Write the units of measurement of the following items of work :

(a) Earthwork excavation for foundation

(b) VRCC for columns

(c) Roofing with AC sheets

3. Explain 'trapezoidal rule' and 'prismoidal rule' with usual notations.

4. Explain the terms lead and lift for the formation of roads and give the values of initial lead and initial lift.

- * 5. The depths at two ends of an embankment of a road of length 90 m are 2.6 m and 3.5 m. The formation width and side slopes are 10 m and 2 : 1 respectively. Estimate the quantity of earthwork by (a) mid sectional area method and (b) mean sectional area method.
6. Tabulate the formats neatly of detailed estimate and abstract estimate separately.
7. Prepare an approximate estimate of a hospital building for 60 beds. The cost of the construction altogether for each bed is ₹ 75,000. Determine the total cost of the hospital building.
8. For a hipped roof shown in Fig. 1., 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 1/3 of span :

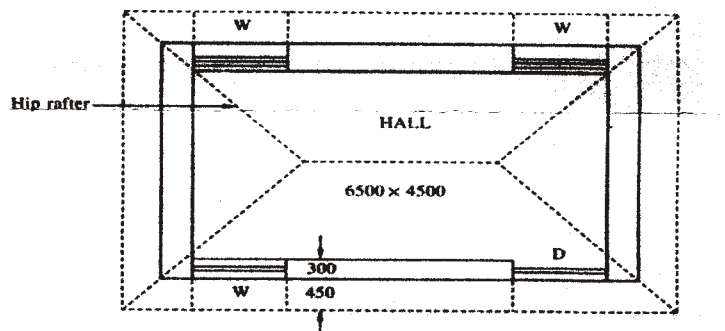


Fig. 1

- * 9. The internal dimensions of a room are 5.50 m × 3.50 m with 300 mm wall thickness. Find the quantity of sand filling in basement, if the height and width of basement are 800 mm and 450 mm respectively.

- * 10. Fig. 2 shows the plan section and elevation of a step for a residential building. Calculate the quantity of brick masonry in CM (1 : 6) required for steps :

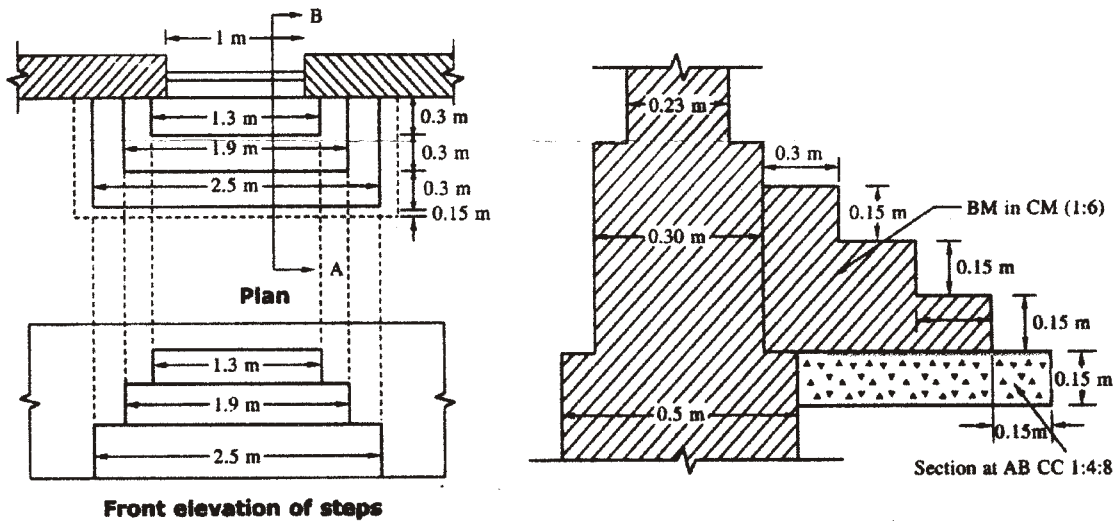


Fig. 2

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) What is meant by specification? State its types and necessity. 1+2+3

- (b) Write the general specifications for reinforced cement concrete works. 4

- * **12.** The road has the following data :

Chainage (in mm)	0	30	60	90	120	150	180	210	240
GL (in m)	30.80	31.25	31.85	32.25	33.00	33.65	34.50	34.85	35.50

The formation level at chainage zero is 33.00 m and having a rising gradient of 1 in 120. The top width is 10 m and the side slope is 2 : 1. Assuming the transverse slope of the ground is level, calculate the volume of earthwork by prismoidal rule and trapezoidal rule.

- 13.** The contour levels and contour areas of a depression are given below. The bed level of the depression is at 78 m contour and is to be filled up to 84 m :

Contour level (in m)	78	79	80	81	82	83	84
Area of contour (in sq. m)	99	103	110	116	120	132	137

Calculate the earthwork quantity by using (a) trapezoidal formula and (b) prismoidal formula.

- 14.** Prepare a preliminary estimate of a cinema theatre whose cubic contents are 8000 m³ using the following data :

- (i) Cost of cinema theatre building is ₹ 900 per m³
- (ii) Cost of water supply, sanitary charges and electrification installations @ 12½% of building cost
- (iii) Cost of architectural features 1% of building cost
- (iv) Cost of roads and lawns @ 5% of building cost
- (v) Cost of contingencies and PS charges @ 3% of overall cost

- 15.** Explain different types of estimates.

16. Fig. 3 shows the plan and section of a part of a compound wall. Calculate the quantity of—

- (a) earthwork excavation for foundations;
- (b) cement concrete required for foundations;
- (c) brick masonry required for footing and wall;
- (d) plastering with CM (1 : 5) for superstructure. $2\frac{1}{2} \times 4 = 10$

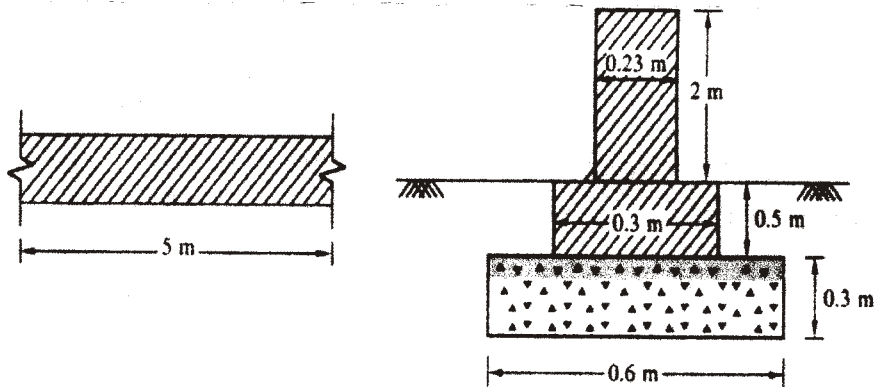


Fig. 3

17. From the simple steel truss shown in Fig. 4, find the steel required for the following : $3+3+4=10$

- (a) Principal rafter AC and CB @ 0.108 kN/m
- (b) Tie beam @ 0.056 kN/m
- (c) Struts @ 0.045 kN/m

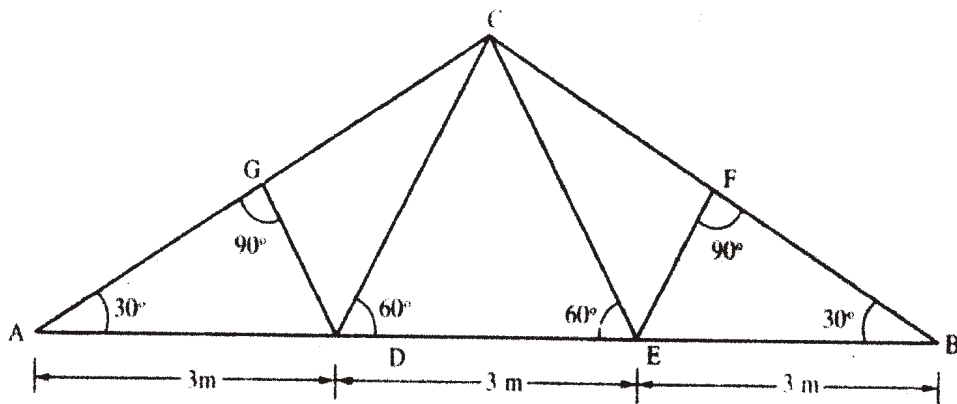
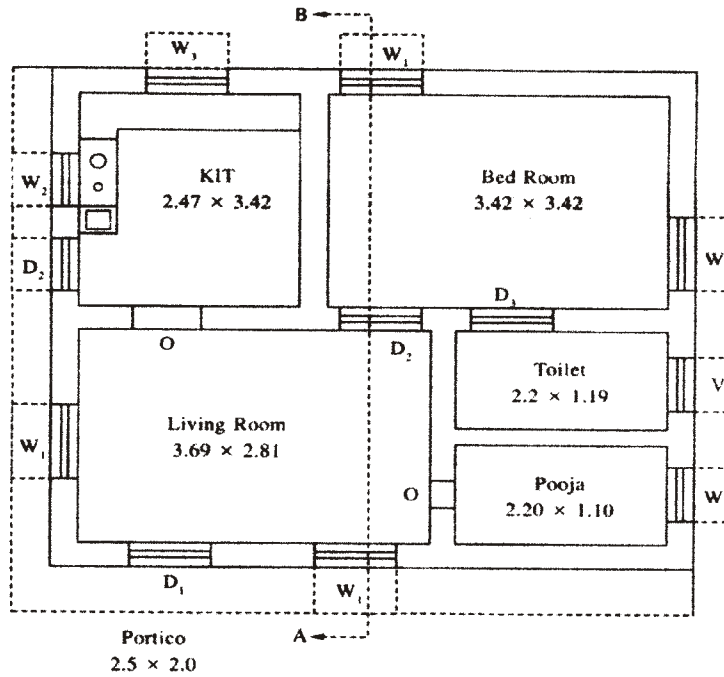


Fig. 4

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

- (a) Earthwork excavation for foundations
- (b) CC bed (1 : 4 : 8) using 40 mm HBD metal for foundations
- (c) Interior plastering with CM (1 : 5) without deductions



PLAN

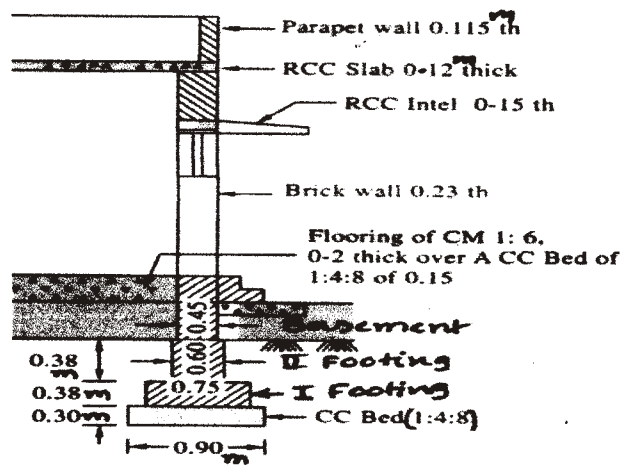


Fig. 5
