17613

BRAINWARE UNIVERSITY

Term End Examination 2025-2026
Programme – Dip.CE-2024
Course Name – Estimation and Costing
Course Code - DCE30102
(Semester III)

Full Marks : 60 **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A
(Multiple Choice Type Question) 1 x 15=15

1. *Choose the correct alternative from the following :*

(i) Select the cause of estimation in civil engineering is mainly used for
a) Designing plans
b) Approximating cost and quantities
c) Selecting labour
d) Measuring only materials

(ii) Select the IS:1200 relates to
a) Water supply estimation
b) Road traffic control
c) Method of measurement
d) Land acquisition

(iii) Select Face Sheet is also known as
a) BOQ
b) Rate list
c) Schedule A
d) Material chart

(iv) Select the abstract sheet, what is not included
a) Rate per unit
b) Quantity
c) Drawing reference
d) Total cost

(v) Select plastering includes measurements for
a) Only walls
b) Walls and ceilings
c) Joints and skirting
d) All options of them.

(vi) Select distinguish between abstract sheet and measurement sheet
a) One is for site log
b) One summarizes, one calculates
c) Both are same
d) One is for labour list

(vii) Select the importance of unit rate in BOQ
a) It affects layout
b) It helps drawing
c) It ensures budgeting
d) None of them

(viii) Select the difference between approximate and detailed estimate
a) Approximate is faster, less accurate
b) Detailed is rough
c) Both same
d) None

(ix) Choose total cost of items: ₹35,000 + ₹22,000 + ₹8,000

a) 65000
b) 63000
c) 60000
d) 70000

(x) Choose estimate bar weight: 12 m long 16 mm dia (weight/m = 1.58 kg)

a) 18.96 kg
b) 21.20 kg
c) 19.60 kg
d) 15.80 kg

(xi) Choose a area estimate: 30 m × 10 m house

a) 300 m^2
b) 250 m^2
c) 350 m^2
d) 280 m^2

(xii) Choose a estimate for additional staircase (area 20 m^2 @ ₹1,800/m^2)

a) 36000
b) 30000
c) 40000
d) 28000

(xiii) Select a book value is

a) Historical cost
b) Market value
c) Value after depreciation
d) Tender cost

(xiv) Select a depreciation reduces

a) Age
b) Design
c) Value
d) Area

(xv) Select a contingency is added in estimates

a) Labour safety
b) Unexpected expenses
c) Documentation
d) Machine use

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Define estimation and explain its purpose in civil engineering projects. (3)
3. Describe the plinth area rate method of approximate estimation. (3)
4. Compute a building has plinth area of 600 m^2 and height of 3.2 m. If cubical rate = ₹5,000/m^3, find estimated cost. (3)
5. Determine labour required for laying 50 m^2 of flooring (task work: 10 m^2/day). (3)
6. Compare the long wall-short wall method with the centre line method. (3)

OR

Analyze the role of provisional sums and prime cost in detailed estimates. (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Compute the earthwork in excavation for the foundation Given: Building footprint: 12 m (length) × 8 m (width) Foundation trench depth: 1.2 m Trench width: 0.6 m Soil swell factor: 20% (i.e., loose volume = in-situ volume × 1.20) Rate of excavation (including loading): ₹120 per m^3 Calculate: In-situ volume of excavation. Loose (swell) volume. Total cost. (5)
8. Estimate plain cement concrete (PCC) for Foundation Bed Given: PCC thickness: 100 mm (0.10 m) Area same as excavation footprint above (12 m × 8 m) Mix ratio: 1 : 4 : 8 (Cement : Sand : Coarse aggregate) Dry volume factor: 1.54 (to account for bulking/voids) Unit rates: Cement: ₹400 per bag (50 kg), 1 bag = 0.035 m^3 Sand: ₹800 per m^3 Coarse aggregate: ₹600 per m^3 Calculate: Wet volume of PCC. Dry volume. Quantity of cement, sand, and aggregate. Cost of each ingredient and total. (5)
9. A person constructs a building with a plinth area of 100 sq m on a plot of land in a certain locality at a cost of Rs 95,000. The height of the building from ground level to the top of the roof is 3.5 m, and a parapet wall of height 80 cm is constructed on the terrace. Determine the (5)

cost of a similar building with a plinth area of 135 sq m to be constructed in the same locality using the plinth area rate and the volume rate method.

10. Estimate(Preliminary) for a Four-Storied Framed Office Building Given Data: Carpet area per floor = 300 sq m (total 4 floors) Additional areas: Corridors, verandahs, lavatories, staircase = 25% of built-up area Walls and columns = 8.5% of built-up area Built-up area rates: Ground floor = Rs 1,500/sq m 1st & 2nd floors = Rs 1,650/sq m 3rd floor = Rs 1,800/sq m Additional costs: Foundation = 20% of superstructure cost Architectural treatment = 1% of building cost Water supply & sanitation = 7% of building cost Electrical installation = 8% of building-cost Other sources = 5% of building cost Contingencies = 4% of overall cost Work-charged establishment = 10% of overall cost. (5)

11. Describe the trapezoidal formula and its use in earthwork estimation. (5)
12. Compare the suitability of different approximate estimating methods for residential and public buildings. (5)

OR

Evaluate the accuracy of approximate quantity method compared to plinth area method. (5)

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