KATHMANDU UNIVERSITY
End Semester Examination
July/August, 2024

Marks Scored:

Level : B.ARCH
Year : III
Course : CIEG 342
Semester : II

Exam Roll No. :
Time: 30 mins.
F. M. : 10

Registration No.:
Date 05 AUG 2024

SECTION "A"
[20 Q. × 0.5 = 10 marks]

Choose and encircle in the most appropriate option from each set of choices

1. The unit of measurement of lime terracing on roof is_____.
   a. m b. m^2 c. m^3 d. Lump-sum

2. In the detailed estimate, the volumes are worked out to the nearest_____.
   a. 0.01 m^3 b. 0.005 m^3 c. 0.001 m^3 d. 0.005 m^3

3. The unit of measurement of surface dressing is_____.
   a. quintal b. m c. m^3 d. m^2

4. Brickwork in arches is measured in_____.
   a. m^3 b. m^2 c. running meter d. numbers

5. The unit of measurement of stonework in wall facing is_____.
   a. m^3 b. m c. m^2 d. lump-sum

6. The scrap value of a building is usually taken as _____of the total cost of the construction.
   a. 5% b. 10% c. 15% d. 20%

7. The quantity of work of any item which is the output of a skilled labour in a day is known as_____.
   a. daily work b. target work c. task work d. basic work

8. In the center line method of working out volumes for cross walls what deductions must be made from the center line length at each junction?
   a. Half breadth b. Twice the breadth
   c. Breadth d. One sixth of the breadth

9. The plan of a building is in the form of rectangle with centerline dimension of outer walls as 9.7 m x 14.7 m. The thickness of wall in superstructure is 0.30m. Then its carpet area is_____.
   a. 150 m^2 b. 145 m^2 c. 160 m^2 d. 135.36 m^2

10. Calculate the quantity of earthwork using prismoidal formula for 200 m length for a portion of road in a uniform ground the height of the banks at two ends being 1.00m and 1.60m. The formation width is 10 meters and side slope is 2:1. Assume that there is no transverse slope
    a. 3288 m^3 b. 3188 m^3 c. 3276 m^3 d. 3312 m^3

11. A detailed estimate which is prepared to maintain the structure or work in proper order and safe condition is called_____.
a. supplementary estimate b. maintenance estimate
c. item rate estimate d. revised estimate

12. The information which can't be included in drawing is conveyed to the estimator through_____.
a. specification b. cover note c. progress chart d. pie chart

13. If B is the width of formation, d is the height of the embankment, side slope S:1, for a highway with no transverse slope, the area of cross section is_____.
a. Bd + Sd b. Bd - Sd^2 c. Bd + Sd d. Bd + Sd^2

14. The technique of finding the fair price of an existing building or property is known as_____.
a. estimation b. pricing c. valuation d. costing

15. Of the total estimated cost of a building, the cost of electrification usually accounts for_____.
a. 8% b. 5% c. 1% d. 20%

16. In the analysis of rates, the profit and over head for the contractor is generally taken as_____.
a. 20% b. 5% c. 10% d. 15%

17. When the engineering department undertakes the works of other department the amount charged towards design, supervision and execution etc. is called_____.
a. work charged establishment. b. centage charges
c. contingencies d. service charges

18. The capitalized value of a property fetching a net annual rent of Rs 1000 and the highest rate of interest prevailing being 10% will be_____.
a. Rs. 10000 b. Rs. 20000 c. Rs. 30000 d. Rs. 40000

19. The expenses of items which do not come under any regular head of items and the cost of unforeseen items are called_____.
a. lump-sum b. extras c. contingencies d. customary charges

20. A layer of dry bricks put below the foundation concrete in the case of soft soils is called_____.
a. soling b. shoring c. superstructure d. damp proof course

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SECTION "B"
[4Q. × 4 = 16 marks]

Attempt ***ANY FOUR*** questions. Assume suitable data wherever necessary.

1. Explain purpose of an estimation. Describe the different data required for preparation of estimate. [2+2]

2. Define scrap value. Explain the various methods of valuation of the property. [1+3]

3. Explain in detail purposes of specification. Write down the detail specification for earthwork in the foundation. [2+2]

4. Describe briefly purposes and requirement of rate analysis. Calculate the quantities of material required for 100 m^3 of brick work in 1:6 cement sand mortar. Assume size of brick as 230 mm x 110 mm x 55 mm and thickness of mortar joint as 10 mm. [2+2]

5. Prepare a preliminary estimate of college building for 200 students in order to assess the fund based on the following particulars. [4]
   a. Carpet area required per student = 1.20 sq. m,
   b. Area of corridor, verandah, lavatories etc. = 20% of the plinth area
   c. Area of walls = 15% of plinth area
   d. Plinth area rate = Rs 1200/m^2
   e. Extra for water supply = 5% of building cost.
   f. Extra for sanitation = 6% of building cost
   g. Extra for interior installation = 10% of building cost.
   h. Cost of approach road and boundary wall = 3% of building cost.
   i. Contingencies = 5% of total cost.
   j. Work charged establishment = 2.5% of total cost.
   k. Supervision charges = 10% of total cost.

SECTION "C"
[4Q. × 6 = 24 marks]

Attempt ***ALL*** questions. Assume suitable data wherever necessary.

6. Write a short note on (***ANY THREE***) [3 × 2 = 6]
   a. Computer application in quantity estimation and valuation.
   b. Principle of valuation.
   c. Supplementary estimate.
   d. Work charged establishment

P.T.O.

7. Work out the valuation of cinema hall with the following information. [6]
Cost of land for life time period of cinema hall = Rs 120000
Gross income per year = Rs 750000
Expenses undergone per annum.
a. To run cinema hall including staff salary, electricity bill, municipal taxes and printing etc. 30% of gross income.
b. Repair and maintenance of machinery plants and equipment is 5% of their capital cost which is Rs 950000.
c. Sinking find for machinery whose life is estimated as 25 years at 4% after allowing 10% scarp value.
d. Insurance premium is Rs 10000 per annum.
e. Annual repair of hall is 2% of gross income.

Assume year's purchase for 60 years at 8% and redemption of capital at 4%

8. Estimate the quantity of earthwork for a portion of a proposed road from the following data.
Formation width of the road throughout is 10 m, side slope in banking and cutting are 2:1 and 1:1 respectively. Downward grade 1 in 120 from distance 0 m to 30 m, while it remains in level from distance 30 m to 90 m and it have again upward grade 1 in 90 from distance 90 m to 120 m. The R.L of formation level at distance 60 m is 1197.50 m. The ground levels of the center line are as under. [6]

R.L. of ground (m)	1198.65	1196.40	1199.30	1200.40	1198.10
Distance (m)	0	30	60	90	120

9. Calculate the quantities of following items of works from following the drawing of building (**Figure 1**) attached herewith. [2+1+1+2]
a. Lime concrete in foundation.
b. 2.5 cm thick D.P.C (1:2:4)
c. 10 cm thick brick work (1:4) in parapet
d. Cement Concrete (1:2:4) excluding reinforcement and shuttering.