KATHMANDU UNIVERSITY
End Semester Examination [C]
December, 2024

Marks Scored:

Level : B.E.
Year : III

Course : CIEG 306
Semester : I

Exam Roll No. :

Time: 30 mins.

F. M. : 10

Registration No.:

Date 23 DEC 2024

SECTION "A"

[20 Q. × 0.5 = 10 marks]

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

1. If B is the width of formation, d is the height of the embankment, side slope id S:1 for a highway with no transverse slope, the area of cross section is_____

   a. $B + d + Sd$ b. $Bd - Sd^{\frac{1}{2}}$ c. $Bd + Sd^2$ d. $\frac{1}{2}(Bd + Sd^{\frac{1}{2}})$

2. The value of the property or structures becomes less by its becoming out of date in style is known as_____

   a. scrap value b. obsolescence c. junk value d. salvation value

3. Of the total estimated cost of a building, the cost of electrification usually accounts for_____

   a. 8% b. 5% c. 1% d. 10%

4. The information which can't be included in drawing is conveyed to the estimator through_____

   a. pie chart. b. cover note. c. progress chart. d. specification.

5. When engineering departments undertakes the works of the other departments, the amount charged towards design, supervision and execution etc. is called_____

   a. contingencies b. work charged establishment
   c. centage charge d. service charge

6. The thickness of slabs and beams must be measured to the nearest_____

   a. 0.01 m b. 0.001 m c. 0.05 m d. 0.005 m

7. Calculate the area of the sides of portion of a bank for a length of 200m, the heights of a banks at the two ends being 2.0m and 3.0m and the ratio of the side slope 2:1.

   a. 2236 m^2 b. 2684 m^2 c.1684 m^2 d.1236 m^2

8. The unit of measurement of honeycomb brick work is_____.

   a. m^2 b. m^3 c. m d. quintal

9. The plan of a building is in the form of a rectangle with centerline dimension of outer walls as 9.7m x 14.7m. The thickness of wall in superstructure is 0.30m. Then its carpet area is_____.

   a. 142.59 m^2 b. 235.36 m^2 c. 242.59 m^2 d. 135.36 m^2

10. The quantity of earthwork calculated using prismoidal formula for 200m length for a portion of road in a uniform ground the height of the banks at the two ends being 1.00m and 1.60m. The formation width is 12 meters and the side slope is 2:1. Assume that there is no transverse slope_____

a. 3288 m^3 b. 3188 m^3 c. 3808 m^3 d. 3108 m^3

11. The covered area of a proposed building is 150 m^2. It includes a rear courtyard of 5m x 5m. If the prevailing plinth area rate for similar building is Rs 1250 per sq. m, what is its cost?

a. Rs. 1,56,250 b. Rs. 1,62,500 c. Rs. 2,56,250 d. Rs. 2,18,650

12. The capitalized value of a property fetching a net annual rent of Rs. 1000 and the highest rate of interest prevalent being 5% is_____

a. Rs 50. b. Rs 500. c. Rs 20000. d. Rs 5000.

13. The scrap value of a building is usually taken as _____of the total cost of the construction.

a. 5% b. 10% c. 20% d. 15%

14. The brickwork is not measured in cu m in case of _____

a. one or more than one brick wall b. brickwork in arches
c. reinforced brickwork d. half brickwork

15. The net annual letting out values of a property, which is obtained after deducting the amount of yearly repairs from the income is known as_____.

a. sinking value b. rateable value c. market value d. book value

16. The unit of measurement of thin partition wall is_____.

a. m^2 b. m^3 c. m d. quintal

17. The unit of measurement of surface dressing is_____.

a. m b. M^2 c. m^3 d. quintal

18. Which of the following is known as general overhead?

a. Losses on advance. b. Interest on investment
c. Amenities to the labour d. Travelling expenses

19. The capacity of doing work by a skilled labour in the form of quantity per day is known as_____.

a. basic work b. out turn work c. daily work d. target work

20. In the detailed estimate, the areas are worked out to be nearest_____

a. 0.01 m^2 b. 0.001 m^2 c. 0.05 m^2 d. 0.005 m^2

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SECTION "B"

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

1.

a. Define an estimate. Explain in detail the purposes of an estimating. [1+2]

b. Prepare the preliminary estimate for the building project from the following data collected. Residential building of 4 storied having total carpet area of 500 m^2 and the wall is 8% of plinth area and that for circulation area occupied by passage verandah, staircase etc. is 10% of the plinth area. The provisional for architectural design is 10% of the civil cost, provision for water supply and sanitary are 6% of civil cost and for electrification is 8% of civil cost. The floor height of one floor of the building is 3 m and height of the parapet wall on the top is 1.2m. The rate of per cubic content is Rs 5000 per m^3. Assume contingencies and work charged established as 5% and 2.5% respectively. [3]

2. Explain briefly the purposed of specification. Write down the detailed specification for brick work in superstructure. [2+2]

3. Define rate analysis. Prepare rate analysis of brick work in superstructure in 1:3 cement mortar. Assume size of brick as 230mm x 110mm x 55mm and thickness of mortar joint as 10mm. Take volume of work as 10 m^3. [1+3]

4. Calculate the quantities of earthwork for a portion of road between 20 m chainage and 100 m chainage at equal interval of 20m using the following data.
Formation width of the road is 10 m, side slope for cutting and filling is 1.5:1 and 2.5:1 respectively. The R.L of formation level at 20 meter chainage is 78.7 m. There is rising gradient of 1in 100 from chainage 20m to 100 m. [6]

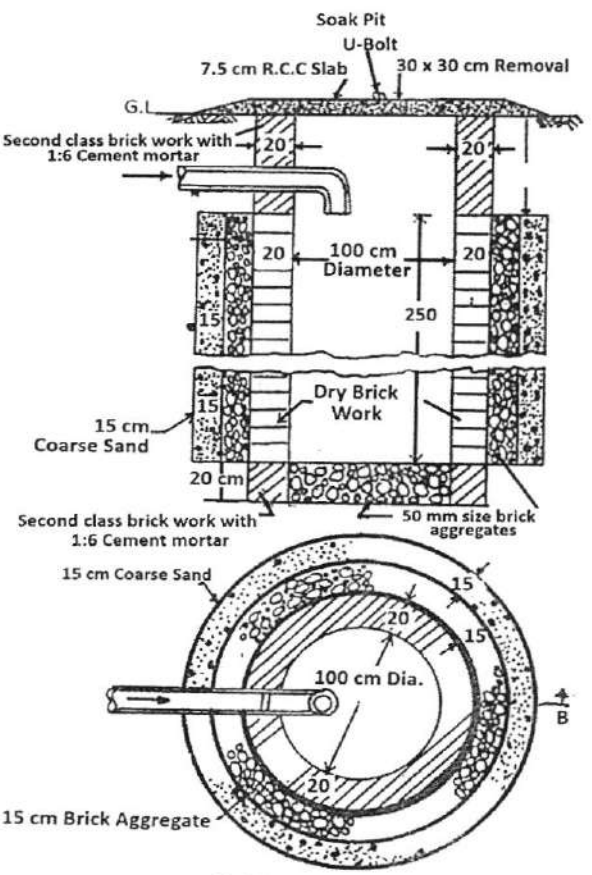
Chainage (m)	20	40	60	80	100
R.L of Ground Level (m)	77.74	77.8	78.2 80.84	80.25	80.25

5. A three storied building is standing on a plot of land measuring 800 m^2. The plinth area of each stored is 500 m^2. The building is of R.C.C. framed structure and the future life may be taken as 70 years. The building fetches a gross rent of Rs. 2500.00 per month. Work out the capitalized value of the property on the basis of 6% net yield. For sinking fund 3% compound interest may be assumed. Cost of land may be taken as Rs. 80.00 per sq. m. Assume plinth area rate as Rs 150 per m^2.
Other data are assumed as follows. [4]

a. Management and collection charge = 6% of gross rent
b. Municipal tax = 20% of gross rent
c. Repairs = 10% of gross income
d. Property tax = 5% of gross rent
e. Other miscellaneous charge = 2% of gross rent

6. Write down a short notes on ***(ANY TWO)*** [2+2]
   a. Supplementary estimate.
   b. Factors affecting value of the property.
   c. Technical sanction.

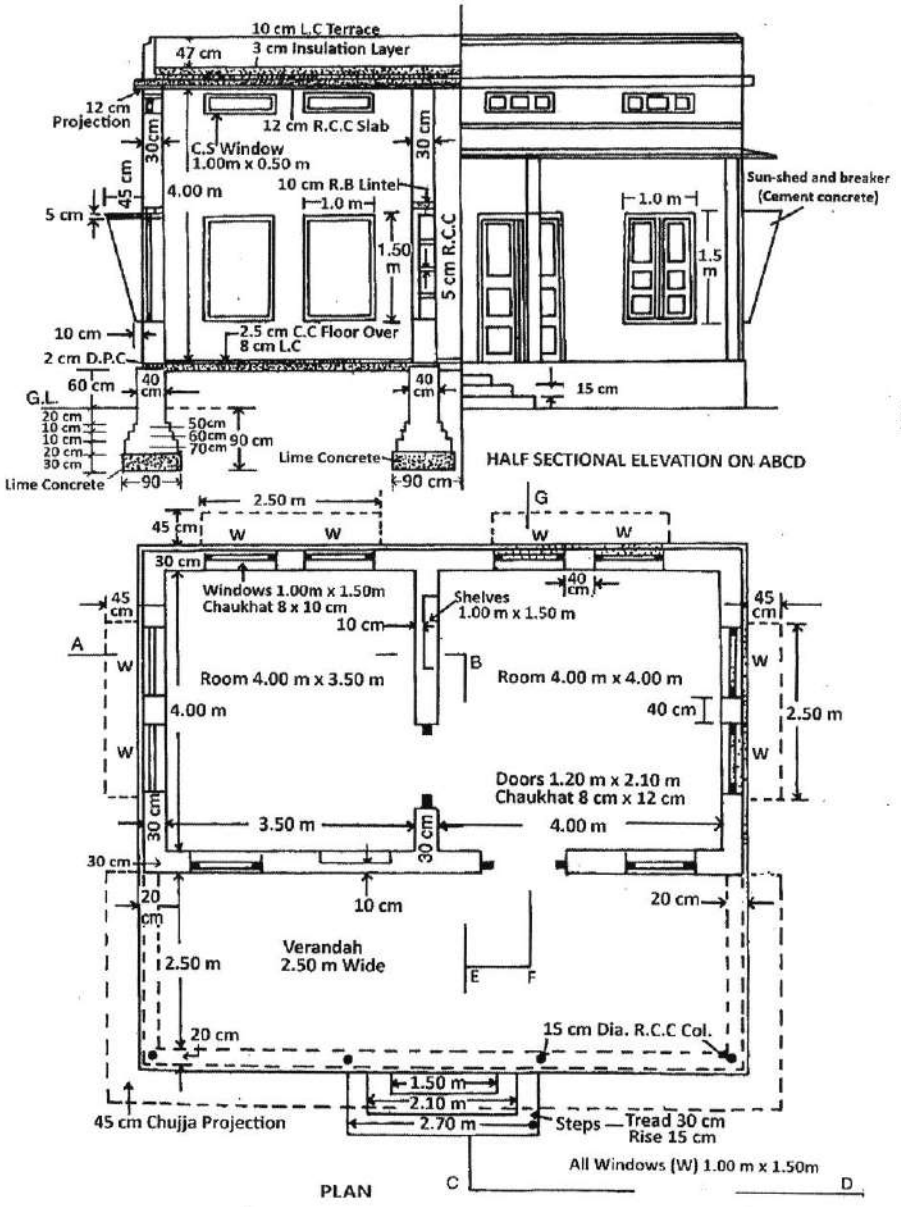
7. Work out the quantity of the following items of work from the given drawing of soak pit (**Figure 1**). [2+2+2]
   a. Earthwork in excavation
   b. Second class brick work in 1:6 cement mortar.
   c. 50 mm size brick aggregates.



PLAN **Figure 1**

All dimensions are in centimeter unless otherwise specified

8. Calculate the quantities of following items of works from given drawing of building: plan, elevation and sectional elevation (**Figure 2**) attached herewith. [2+2+2]
   a. Lime concrete in foundation.
   b. First class brickwork in cement mortar (1:6) in foundation and plinth over lime cement concrete.
   c. First class brick work (1:6) in superstructure wall



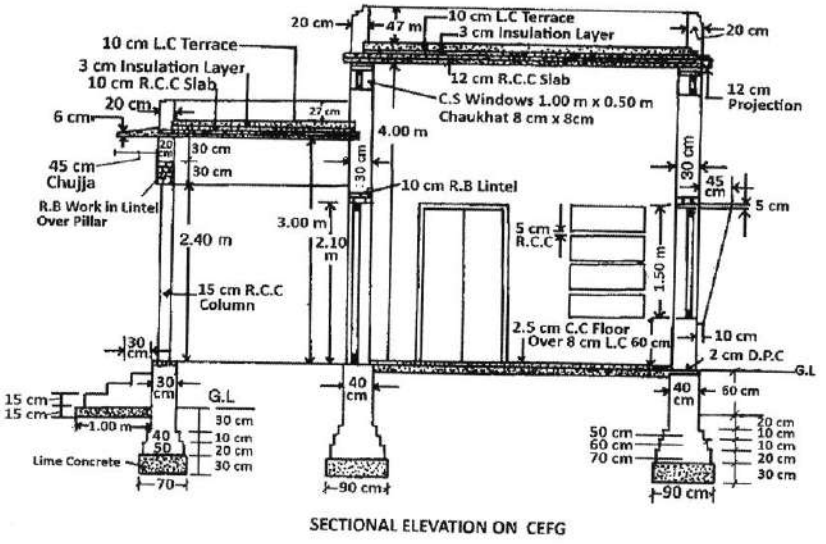


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Figure 2