

KATHMANDU UNIVERSITY  
End Semester Examination  
July/August, 2024

Level : B.E.  
Year : III  
Time : 2 hrs. 30mins.

09 AUG 2024

Course : CIEG 306  
Semester : I  
F. M. : 40

SECTION "B"

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

1. a. Define actual cost. Explain briefly different data that are required for preparation of an estimate. [1+2]  
b. A person constructs a building of plinth area equal to 120 sq.m on a plot of land in a certain locality at a cost of Rs. 600000. The height of building from ground level to the top of roof is 3.2m and a parapet wall of height equal to 800 mm is constructed on the terrace. Determine the cost of construction of similar type of the building having plinth area 150 sq.m in the same locality based on [3]
  - i. Plinth area rate method.
  - ii. Cubic content rate method.
2. Explain briefly the various types of specification. Write down the detailed specification for plastering with cement mortar on wall. [2+2]
3. Explain briefly factors affecting rate analysis. Calculate the quantities of material required for 115 m<sup>3</sup> of brick work in 1:3 cement mortar. Assume thickness of mortar as 10 mm and size of brick as 230 mm x 110 mm x 55 mm. [2+2]
4. A city corporation has to acquire an area of 400000 sq.m for development of a new colony. After developing the area, it is proposed to be sold at Rs. 45 per sq. meter. Calculate the maximum compensation which can be given to the owners whose land is to be acquired for the development of colony assuming: [4]
  - a. Corporation establishment charge is 15% on the sale price.
  - b. 40% area provided for road, park and offer public amenities.
  - c. Colony improvement expenditure Rs. 7 per sq.m
  - d. Engineer and architect fee for surveying and planning is 4% in the sale price on the plot in a colony.
5. Calculate the quantity of earthwork for a portion of a road between chainages 50 and 59 from the following data, length being measured with a standard 20m chain.

Chainage	50	51	52	53	54	55	56	57	58	59
R.L of Ground Level (m)	131.1	131.2	130.9	131	130.8	130.7	130.6	130	129.1	129.5

The R.L of formation level at chainage 50 is 130.0 m and the road is in a rising gradient of 1 in 200. The width of formation is 10m and side slopes is 1.5:1 in embankment and 1:1 in cutting, the lateral slope of the ground may be assumed as level. [6]

6. Work out the quantity of the following items of work from the given drawing of slab culvert (Figure 1). [1+1+3+1]
- Earthwork in excavation in foundation.
  - Cement concrete (1:3:6) in foundation with stone ballast.
  - First class brick work in 1:4 cement mortar.
  - R.C.C work 1:2:4 in slab excluding steel and its bending.
7. Calculate the quantities of following items of works from following drawing of building (Figure 2) attached herewith. [2+2+2]
- Earthwork in excavation for foundation trench.
  - First class brickwork in cement mortar (1:6) in foundation and plinth.
  - First class brick work (1:6) in superstructure walls
8. Differentiate between [2+2]
- Supplementary estimate and revised estimate
  - Scarp value and Salvage value.

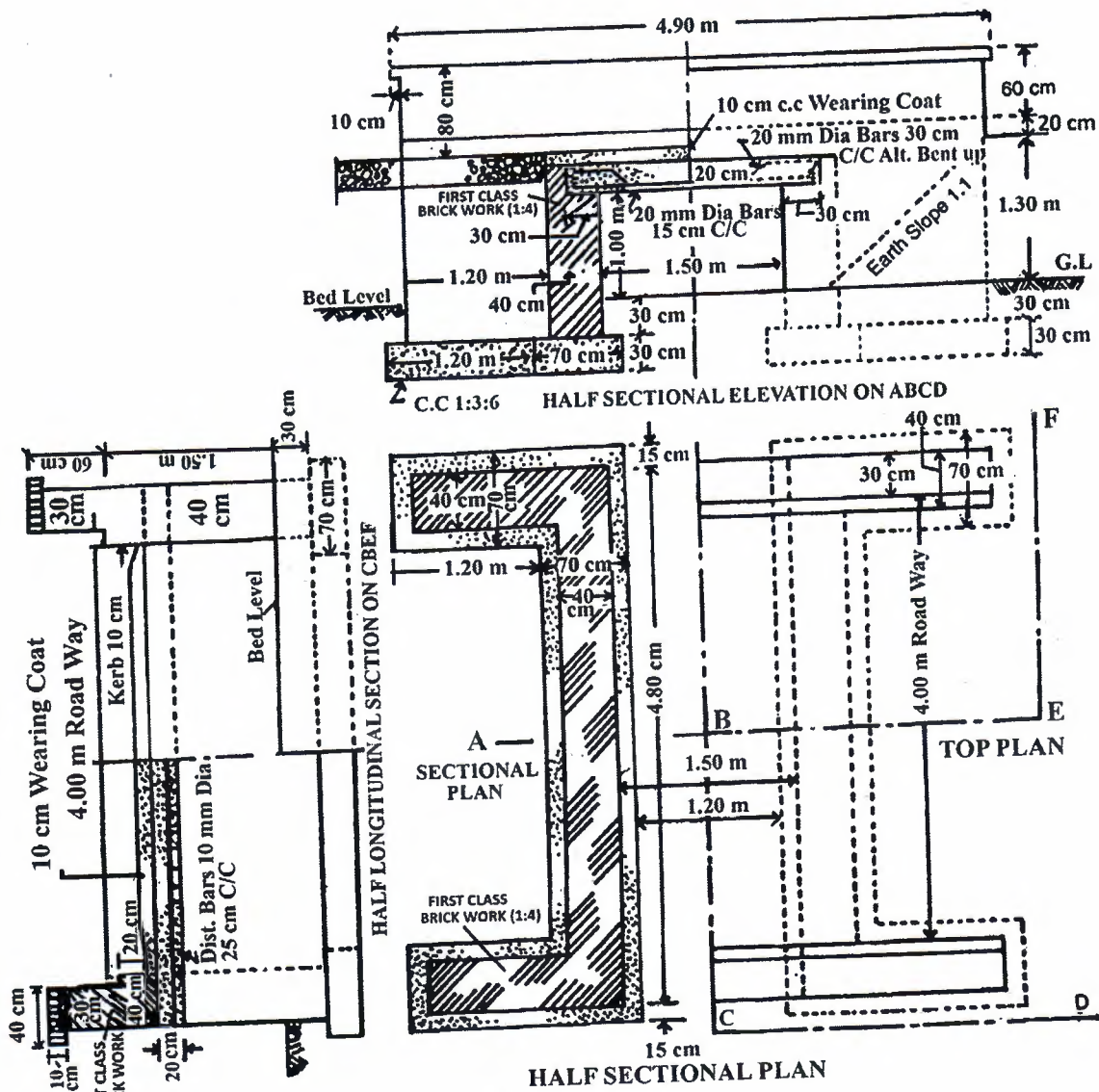
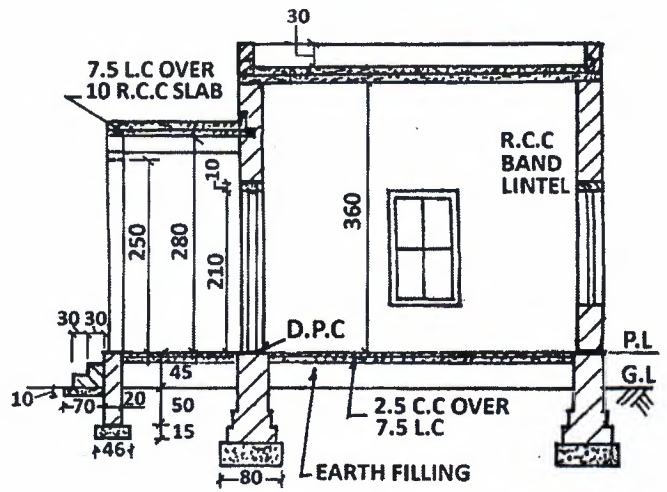
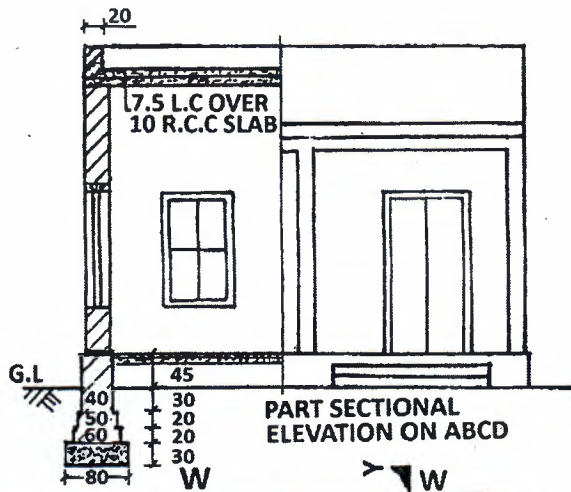


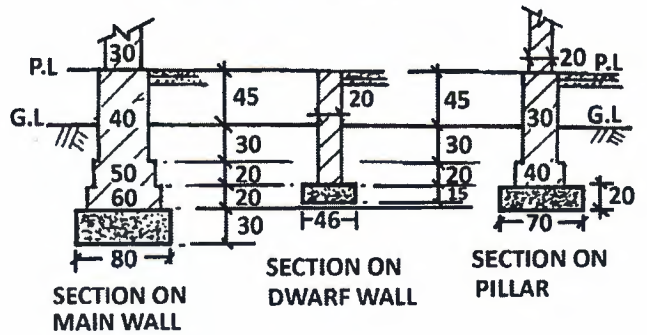
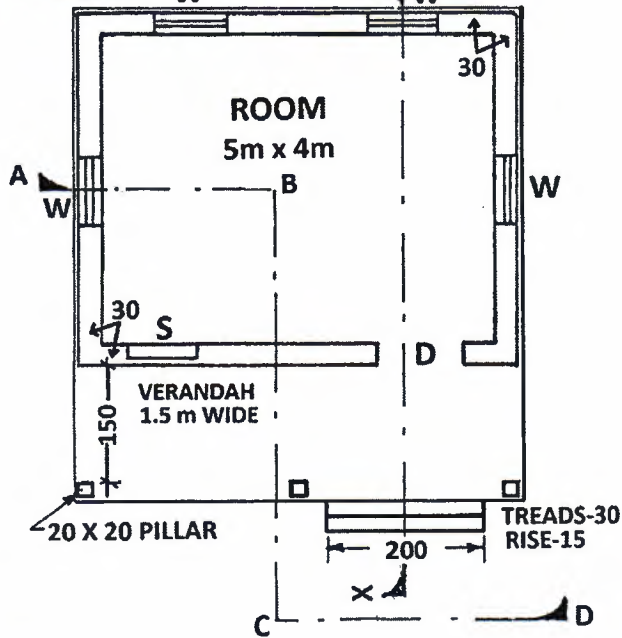
Figure 1



**SECTION XY**

**SCHEDULE**

- DOOR D = 110 x 210
- WINDOW W = 90 x 150
- SHELF S = 90 x 150



All Dimensions are in cm, except otherwise mentioned

Figure 2



KATHMANDU UNIVERSITY  
End Semester Examination  
July/August, 2024

Marks Scored:

Level : B.E.

Year : III

Exam Roll No. :

Time: 30 mins.

Registration No.:

Course : CIEG 306

Semester : I

F. M. : 10

Date : 09 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 plan of a building is in the form of rectangle with centerline dimension of outer walls as 9.7m x 14.7m. The thickness of wall in superstructure is 0.3m. Then its plinth area is \_\_\_\_\_.  
a. 150 m<sup>2</sup>                      b. 145 m<sup>2</sup>                      c. 145.5 m<sup>2</sup>                      d. 135.36 m<sup>2</sup>
2. The thickness of slabs and beams must be measured to the nearest \_\_\_\_\_.  
a. 0.01 m                      b. 0.001 m                      c. 0.005 m                      d. 0.05 m
3. 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 2.50m and 3.50m and the ratio of the side slope 2:1  
a. 3584 m<sup>2</sup>                      b. 3684 m<sup>2</sup>                      c. 2584 m<sup>2</sup>                      d. 2684 m<sup>2</sup>
4. No deductions is made in the plastering or painting if the area of the opening does not exceed \_\_\_\_\_.  
a. 0.50 m<sup>2</sup>                      b. 0.15 m<sup>2</sup>                      c. 0.25 m<sup>2</sup>                      d. 0.10 m<sup>2</sup>
5. Pick up the items of work not included in the plinth area estimate.  
a. Wall thickness                      b. Room area                      c. Courtyard area                      d. Verandah area
6. The covered area of a proposed building is 150 m<sup>2</sup> and it includes a rear courtyard of 5m x 4m. If the prevailing plinth area rate for similar building is Rs 1250 per sq. m, what is its cost?  
a. Rs. 1,87,500                      b. Rs. 1,62,500                      c. Rs. 2,12,500                      d. Rs. 3,75,000
7. The unit of measurement of steel works in trussed and its part is \_\_\_\_\_.  
a. quintal                      b. cm                      c. numbers                      d. sq.m
8. The unit of measurement for blasting of rock including staking is \_\_\_\_\_.  
a. sq.m                      b. quintal                      c. % sq.m                      d. m<sup>3</sup>
9. The net annual letting out value of a property, which is obtained after deducting the amount of yearly repairs from the gross income is known as \_\_\_\_\_.  
a. market value                      b. book value                      c. rateable value                      d. sinking value
10. Which of the following is known as general overhead?  
a. Amenities to labour                      b. Travelling expenses.  
c. Losses on advance.                      d. Interest on investment.
11. In a detailed estimate the provision for contingencies is usually \_\_\_\_\_.  
a. 1 percent                      b. 10 percent                      c. 3 to 5 percent                      d. 12 to 15 percent

12. The value of the property that can be obtained at any particular time from the open market if the property is put for sale is known as \_\_\_\_\_.
- a. market value      b. book value      c. current value.      d. obsolescence.
13. In the detailed estimate, the areas are worked out to be nearest \_\_\_\_\_.
- a.  $0.01 \text{ m}^2$       b.  $0.0001 \text{ m}^2$       c.  $0.05 \text{ m}^2$       d.  $0.005 \text{ m}^2$
14. No deduction is made in the masonry for the opening if the area of the opening does not exceed \_\_\_\_\_.
- a.  $0.5 \text{ m}^2$       b.  $0.25 \text{ m}^2$       c.  $0.15 \text{ m}^2$       d.  $0.10 \text{ m}^2$
15. The unit of measurement of reinforced brick work is \_\_\_\_\_.
- a.  $\text{m}^3$       b.  $\text{m}^2$       c. m      d. quintal
16. When not specified, the volume of steel in R.C.C work is taken as \_\_\_\_\_.
- a. 1% to 1.6% of R.C.C volume      b. 2% to 4% of R.C.C volume  
c. 0.6% to 1% of R.C.C volume      d. 4% to 6% of R.C.C volume
17. The quantity of work of any item which is the output of skilled labour in a day is known as \_\_\_\_\_.
- a. basic work      b. daily work      c. target work      d. task work
18. The gradual accumulation of amount by the way of annual periodic deposits which is meant for replacement of the structure at the end of its useful life period is known as \_\_\_\_\_.
- a. annuity.      b. depreciation      c. sinking fund      d. solatium
19. The area of the segmental portion of an arch with span 'L' and rise 'r' is approximately equal to \_\_\_\_\_.
- a.  $\frac{2}{3}Lr$       b.  $\frac{1}{2}Lr$       c.  $\frac{3}{4}Lr$       d.  $\frac{3}{8}Lr$
20. The quantity of soling is obtained in \_\_\_\_\_.
- a.  $\text{m}^3$       b.  $\text{m}^2$       c. m      d. quintal