

KATHMANDU UNIVERSITY  
End Semester Examination [C]  
June/July 2024

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

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

30 JUN 2024

SECTION "B"

Attempt *ALL* questions. Make suitable assumptions when needed. The figures in the parenthesis indicate the marks allocated for the question.

1. a. Define actual cost. Explain briefly that estimated cost is never the actual cost. [1+2=3]  
b. As an estimator you are asked to prepare a preliminary estimate of college building for 200 students in order to assess the fund. Given that carpet area required per student is 1.20 square meter with an area of corridor, verandah, lavatories etc. to be 20% and for wall 15% of plinth area of the building. Given that [3]
  - i. Plinth area rate = Rs 1400 per sq. m
  - ii. Extra for water supply and sanitation = 6% of building cost.
  - iii. Extra for interior installation = 8% of building cost.
  - iv. Contingencies = 2.5%
  - v. Supervision charges = 8%
2. Explain briefly essential requirement of specification. Write down the detail specification for earthwork in excavation in foundation. [2+2=4]
3. Define job overhead. Calculate the quantities of materials required for 10 m<sup>3</sup> of PCC (1:2:4) in foundation. [1+3=4]
4. A coloniser intends to purchase a land of 100000 sq.m area located in the suburb of a big city to develop it into plots of 700 sq m each after providing necessary roads and parks. The current sale price of small plots in the neighbourhood is Rs 30 per sq.m. The coloniser wants a net profit of 20%. Work out the maximum price of the land at which the coloniser may purchase the land. The detail of the expenses are given below. [4]
  - i. The cost of improving of land levelling and dressing is Rs 0.25 per sq.m.
  - ii. Engineer's and architect's fee for surveying, planning and subdividing is 3% on the sale price.
  - iii. Cost of providing road, drainage, water supply and electrification is Rs 3 per sq.m of whole land.
  - iv. Other miscellaneous expenses is 1% on the sale price.
5. Find out the quantity of earthwork of a portion of road to be constructed with the following data.  
Formation width of the road throughout is 10m, side slope in banking and cutting are 2:1 and 1:1 respectively. Downward grade 1 in 120 from distance 90 m to 120 m, while it remains in level from distance 120 m to 180 m and have again upward grade 1 in 90 from distance 180 m to 210 m. The R.L of formation level at distance 180m is 1197.50 m. The ground levels are as under. [6]

RL of ground (m)	1198.65	1196.40	1199.30	1200.40	1198.10
Distance (m)	90	120	150	180	210

6. Work out the quantity of the following items of work from given drawing of RCC column with foundation footing (**Figure 1**). [1+2+3=6]
- Cement concrete (1:4:8) in base.
  - RCC work 1:2:4 in footing excluding steel and its bending but including centering and shuttering.
  - Steel reinforcing bars including bending in base footing and column.

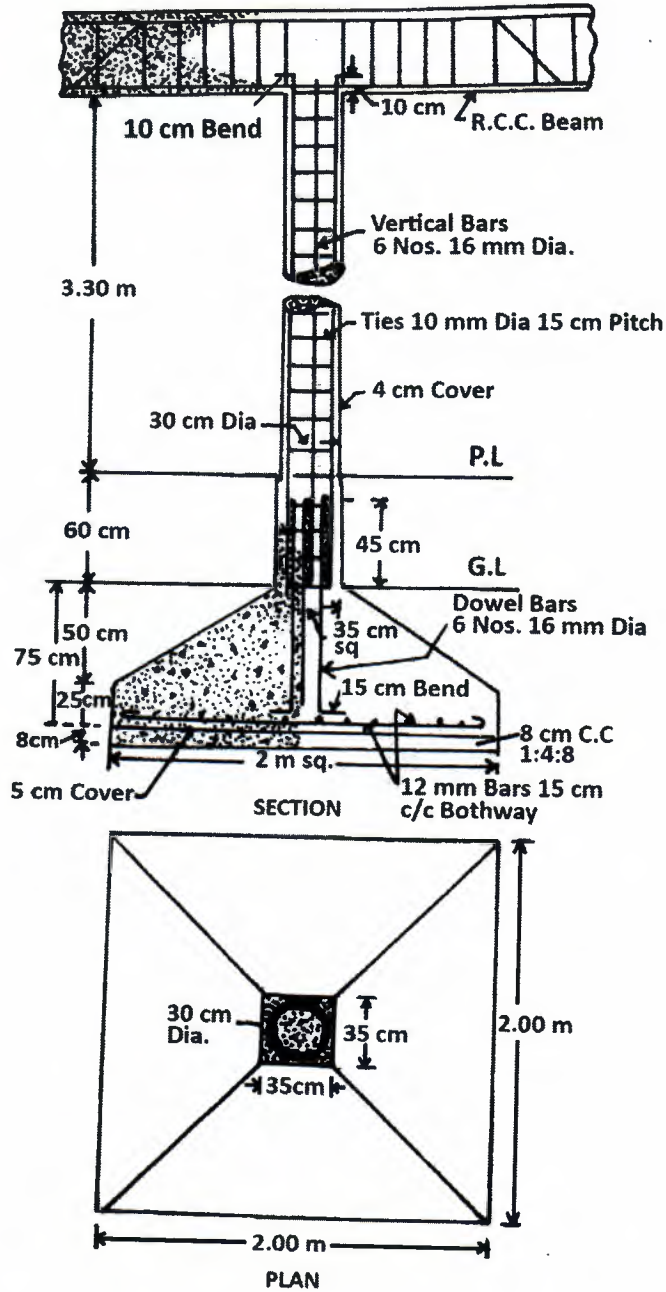


Figure 1

7. Write a short note on [ANY TWO]
- Requirement of rate analysis.
  - Rental methods of valuation.
  - Revised estimate.

[2+2=4]

8. Prepare a detailed estimate of following items of work from the given plan, elevation and sectional drawing of the building as shown in figure 2 attached herewith. [2+2+1+1=6]
- Earthwork in excavation in foundation.
  - First class brickwork in cement mortar (1:6) in foundation and plinth.
  - 7.5 cm lime concrete in roof terracing.
  - 12 mm plastering on ceiling with 1:3 cement and coarse sand mortar.

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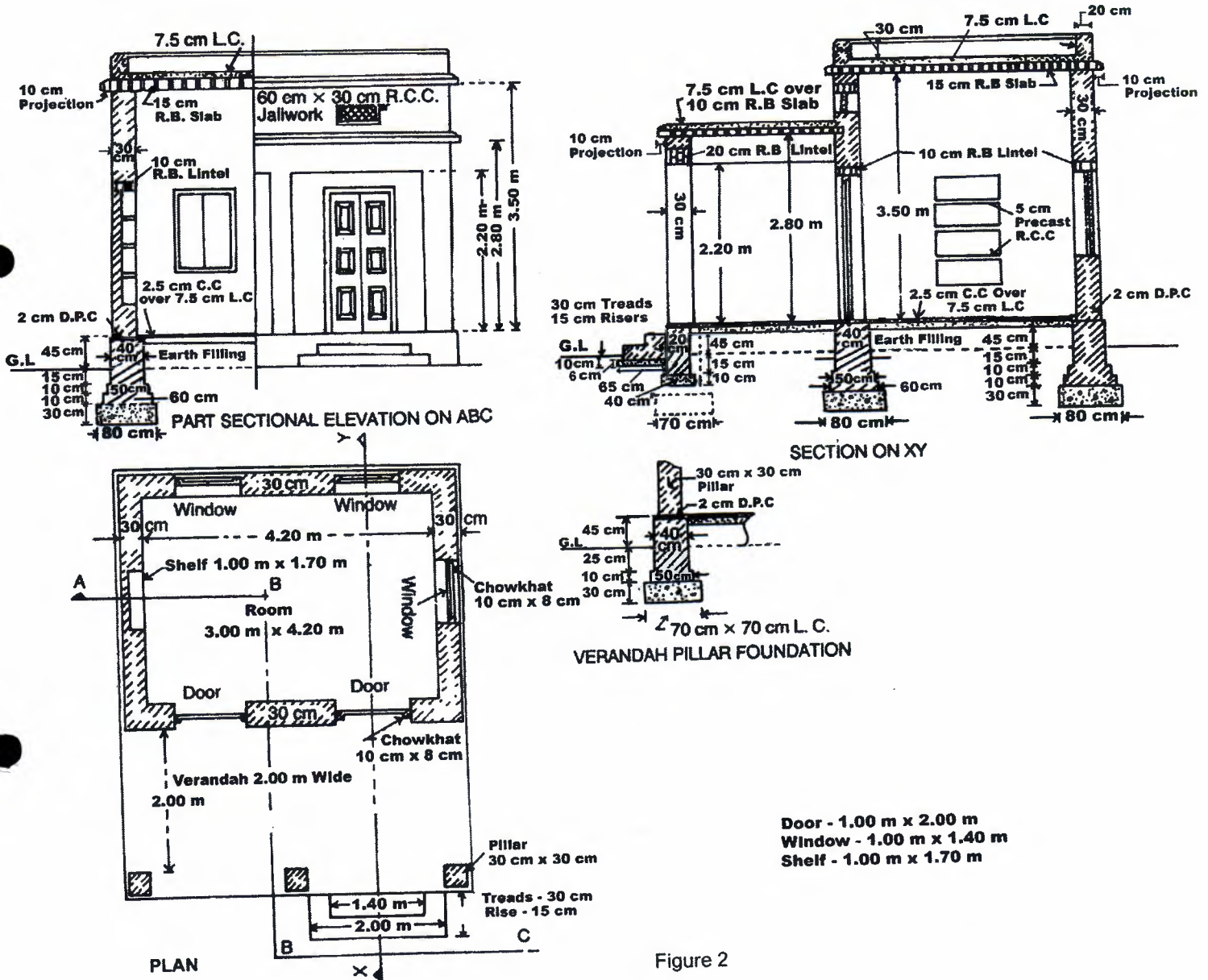
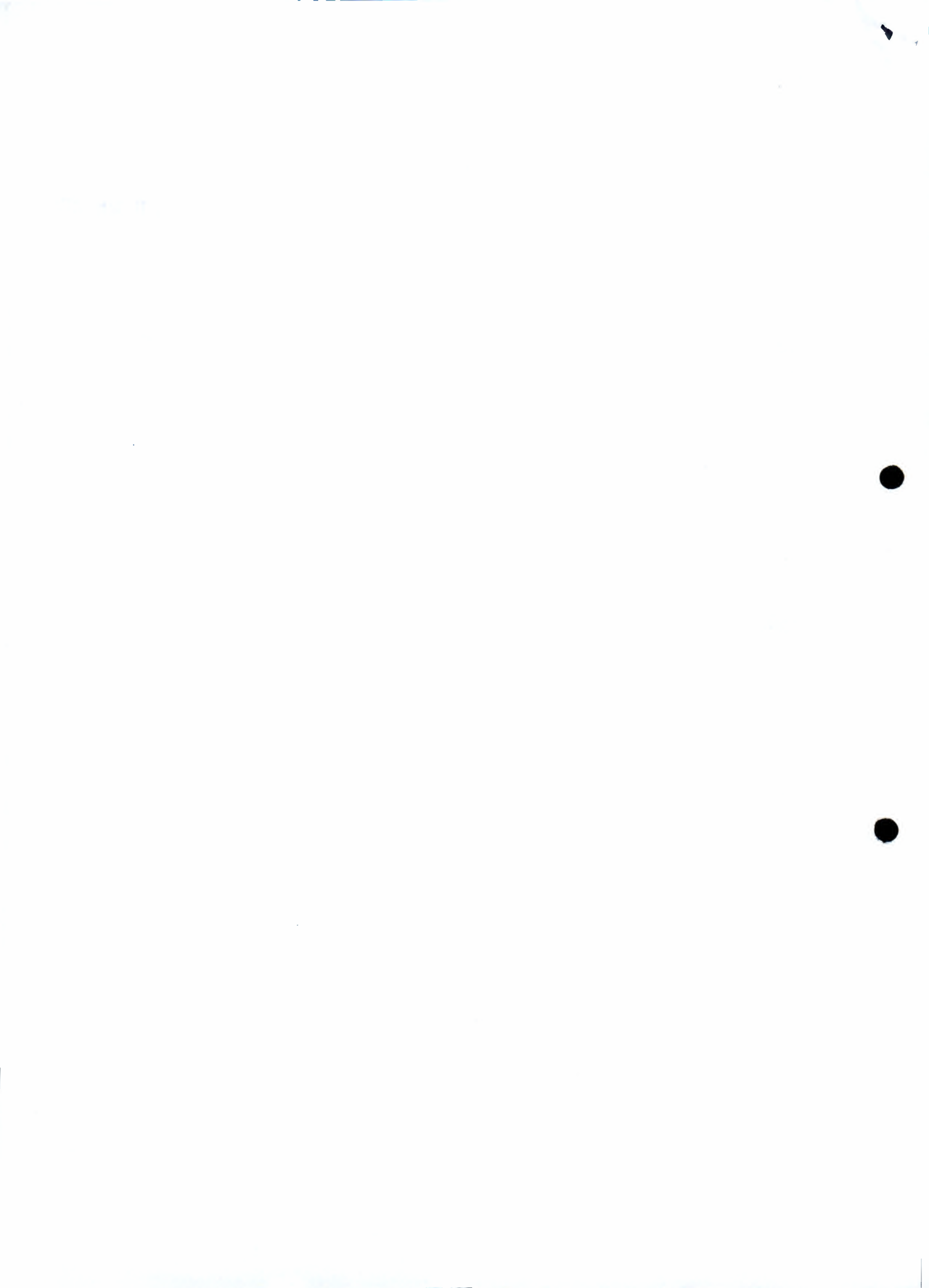


Figure 2



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Marks Scored:

Level : B.E.

Year : III

Exam Roll No. :

Time: 30 mins.

Registration No.:

Course : CIEG 306

Semester : I

F. M. : 10

Date **3:0 JUN 2024**

SECTION "A"

[20Q. × 0.5 = 10 marks]

Choose and encircle the most appropriate answer.

- No deductions is made in the plastering or painting if the area of the opening does not exceed \_\_\_\_\_  
a.  $0.50 \text{ m}^2$       b.  $0.15 \text{ m}^2$       c.  $0.25 \text{ m}^2$       d.  $0.10 \text{ m}^2$
- The quantity of partition walls and honey-comb walls are worked out in \_\_\_\_\_  
a.  $\text{m}^3$       b.  $\text{m}^2$       c. lump-sum      d. m
- In long and short wall method of estimation, the length of long wall is the center to center distance between wall and \_\_\_\_\_  
a. breadth of wall  
b. half of the breadth of wall on each side  
c. one fourth of the breadth of wall on each side  
d. one sixth of the breadth of wall on each side
- The brick work is not measured in cubic meter in case of \_\_\_\_\_  
a. one or more than one brick wall      b. brickwork in arches  
c. half brickwork      d. reinforced brickwork
- The unit of measurement for blasting of rock including staking is \_\_\_\_\_  
a. sq. m.      b.  $\text{m}^3$       c. m      d. quintal
- The thickness of slabs and beams must be measured to the nearest \_\_\_\_\_  
a. 0.005 m      b. 0.001 m      c. 0.001 m      d. 0.005 m
- The plan of a building is in the form of a rectangle with centerline dimension of outer walls as  $9.7\text{m} \times 14.7\text{m}$ . The thickness of wall in superstructure is 0.30m. Then its carpet area is \_\_\_\_\_  
a.  $150 \text{ m}^2$       b.  $145 \text{ m}^2$       c.  $145.5 \text{ m}^2$       d.  $135.36 \text{ m}^2$
- The value of the property or structures becomes less by its becoming out of date in style is known as \_\_\_\_\_  
a. scrap value.      b. salvation value.      c. obsolescence.      d. Junk value.
- The annual periodic payments made for the repayment of the capital invested is known as \_\_\_\_\_  
a. Annuity      b. depreciation      c. sinking fund      d. salvation
- The capacity of doing work by a skilled labour in the form of quantity per day is known as \_\_\_\_\_  
a. basic work.      b. daily work.      c. target work.      d. out turn work.

11. 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 10 meters and the side slope is 2:1. Assume that there is no transverse slope \_\_\_\_\_.
- a. 3288 m<sup>3</sup>      b. 3188 m<sup>3</sup>      c. 3276 m<sup>3</sup>      d. 3312 m<sup>3</sup>
12. 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. 2684 m<sup>2</sup>      b. 3684 m<sup>2</sup>      c. 2584 m<sup>2</sup>      d. 3584 m<sup>2</sup>
13. The technique of finding the fair price of an existing building or property is known as \_\_\_\_\_.
- a. Estimation      b. pricing      c. valuation      d. costing
14. The unit of measurement of stone work in wall facing or lining if the thickness is specified is \_\_\_\_\_.
- a. sq. m      b. m<sup>3</sup>      c. m      d. quintal
15. Pick up the items of work not included in the plinth area estimate.
- a. Wall thickness      b. Room area      c. Verandah area      d. Courtyard area
16. The value of the property at the end of the utility period without being dismantled is known as \_\_\_\_\_.
- a. book value      b. scrap value      c. salvage value.      d. market value.
17. The value shown in account book after allowing necessary depreciation is known as \_\_\_\_\_.
- a. book value      b. market value      c. Salvage value      d. rateable value
18. Plinth area estimate is approximate estimate mostly used for the estimation of \_\_\_\_\_.
- a. irrigation channel      b. road      c. building      d. bridge
19. When engineering departments undertake the works of other departments the amount charged towards design, supervision and execution etc. is called \_\_\_\_\_.
- a. work charged establishment      b. centage charges  
c. contingencies      d. service charges
20. In the detailed estimate, the areas are worked out to be nearest \_\_\_\_\_.
- a. 0.01 m<sup>2</sup>      b. 0.001 m<sup>2</sup>      c. 0.05 m<sup>2</sup>      d. 0.005 m<sup>2</sup>