PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF ENGINEERING
END TERM EXAMINATION - JUN 2023

Semester : Semester VI - 2020
Course Code : CIV3001
Course Name : Sem VI - CIV3001 - Estimation Costing and Valuation
Program : CIV

Date : 9-JUN-2023
Time : 9.30AM - 12.30PM
Max Marks : 100
Weightage : 50%

Instructions:
(i) Read all questions carefully and answer accordingly.
(ii) Question paper consists of 3 parts.
(iii) Scientific and non-programmable calculator are permitted.
(iv) Do not write any information on the question paper other than Roll Number.

PART A

ANSWER ALL THE QUESTIONS   (5 X 4 = 20M)

1. A pumping set with motor has been installed in a building at a cost of Rs. 25000, assume life of pump as 20 years, work out the amount of annual installment of sinking fund required to be deposited to accumulate 4% compound interest.

(CO3) [Knowledge]

2. A lathe machine has been installed in a building at a cost of Rs. 30000, assume life of machine as 20 years, work out the amount of annual installment of sinking fund required to be deposited to accumulate 4% compound interest.

(CO3) [Knowledge]

3. Contract is an agreement between two parties. List the various types of contracts.

(CO1) [Knowledge]

4. Calculate the quantity of earth work for 200 m length for a portion of road in a uniform ground and the height of two banks at the end is 1.0 m and 1.6 m. Formation width of road is 10 m and side slope is 2:1. Calculate the quantity of earth work by mid sectional area method.

(CO3) [Knowledge]

5. Estimation is the probable cost of construction which is prepared before execution of work. List the various types of estimation.

(CO1) [Knowledge]

ANSWER ALL THE QUESTIONS   **(4 X 10 = 40M)**

6. A building at Kolar, having a carpet area of 30,000 sq. ft, given the following data prepare the preliminary estimate. It may be assumed that 35% of built-up area will be taken up by corridors, verandahs, lavatories, staircases, etc. and 11% of built up area will be occupied by wall and other supports.
   (i) Plinth area rate - Rs. 1000.00 per sq. m
   (ii) Extra for special Architectural treatment – 1% of the building cost (BC)
   (iii) Extra for water supply and sanitary installation – 5% of the building cost
   (iv) Extra for electrical installations – 12% of Building cost
   (v) Extra for services – 5% of the building cost
   (vi) Contingencies – 3%
   (vii) Supervision charges - 8%

   (CO1) [Comprehension]

7. Figure shown below is a sectional elevation of a RCC column for a construction site at Vijaynagar with foundation footing. Prepare the estimate for the following items work. A) Earthwork in excavation in foundation, B) Cement concrete 1:4:8 at the base C) RCC work 1:2:4 in footing D) RCC work 1:2:4 in column and E) Steel reinforcing bar.
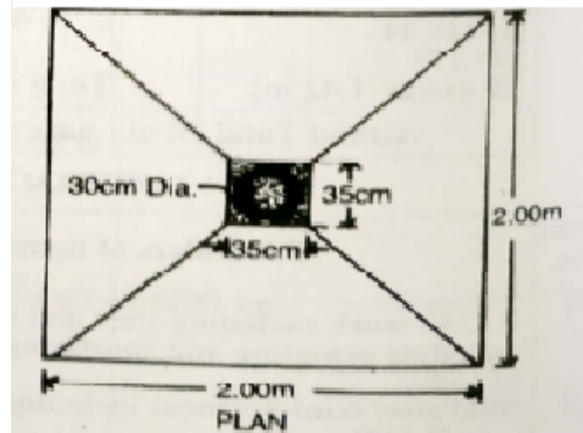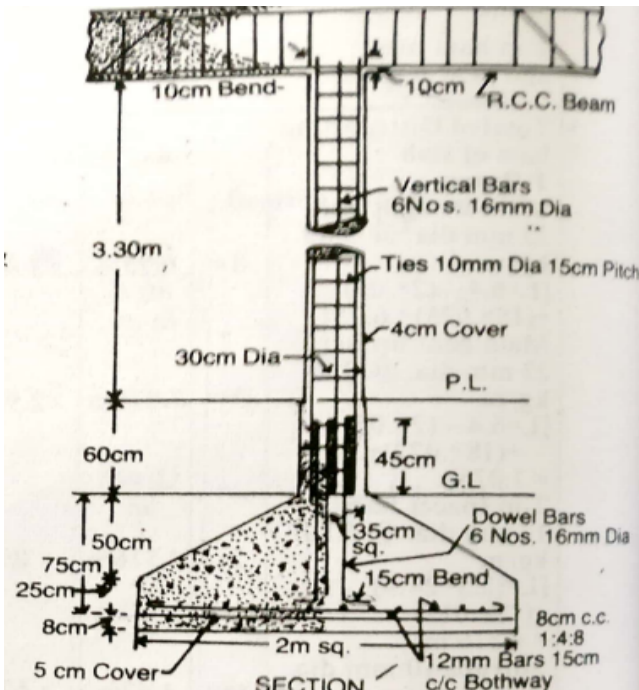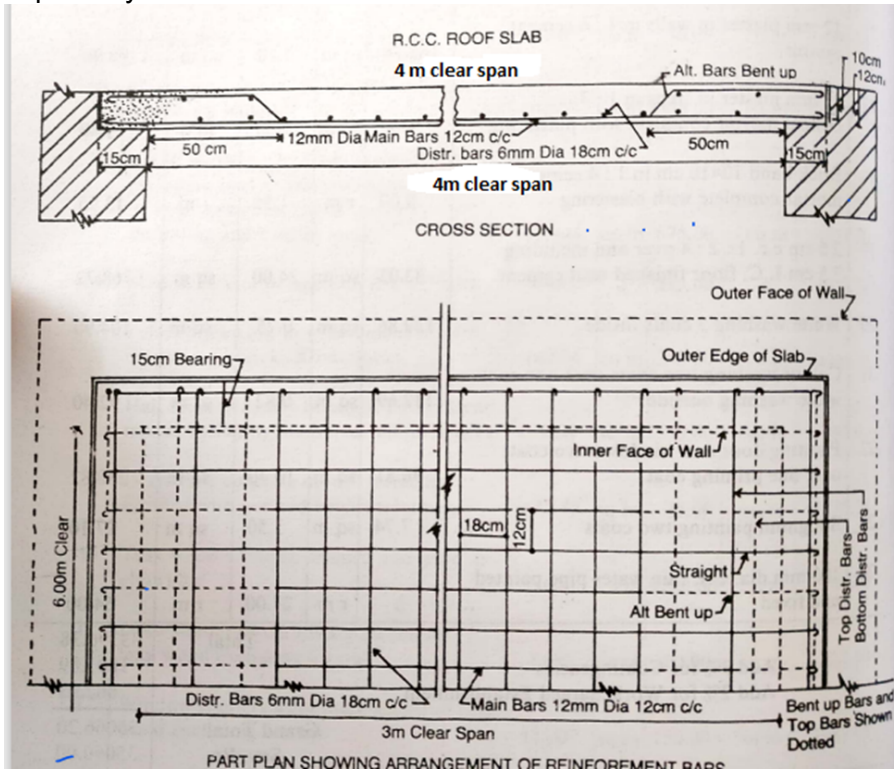

(CO2) [Comprehension]

8. A four storied building is standing on a plot of 1000 square meter near Malleshwaram. The plinth area of each storey is 500 square meter. The building is RCC framed structure and the life of the building is 60 years. The building fetches a rent of Rs. 2000 per month. Work out the capitalized value of the property on the basis of 7% net yield. For sinking fund 4% compound interest may be assumed. Cost of land is Rs. 3000 per square meter. Assume a) Repairs as 10% of gross income, b) Municipal tax at 20% of gross rent, c) property tax at 3% of gross rent, d) Insurance premium 2% of gross rent, e) Other miscellaneous charges at 1% of the gross income. Assume the sinking fund required to be accumulated at the rate of Rs. 200 square meter.

(CO3) [Comprehension]

9. An estimate needs to be prepared for a RCC roof slab for building at Malleshwaram with 4m clear span and 6m length from the given drawing. RCC work including centering and shuttering can be taken out separately.
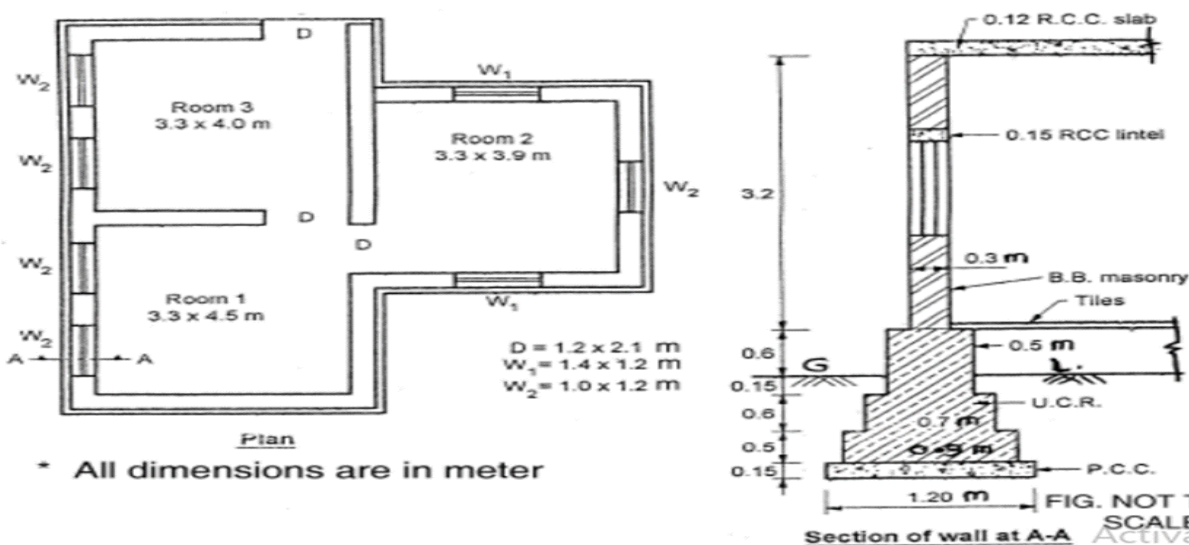

R.C.C. ROOF SLAB

CROSS SECTION

PART PLAN SHOWING ARRANGEMENT OF REINFORCEMENT BARS

(CO2) [Comprehension]

PART C

ANSWER ALL THE QUESTIONS   **(2 X 20 = 40M)**

10. Taking out the quantities is very important step in estimation. In this context, prepare an estimate for the following items of works by center line method for the building plan whose line diagram is given below. The Fig. show the plan of superstructure wall of a 2 BHK residential building and section represents the cross sections of the walls with foundation. a) Earthwork in excavation in foundation. b) Plain cement concrete (PCC) in foundation. c) Brickwork in foundation and plinth in 1:6 cement mortar. d) First class brickwork in super structure in 1:6 cement mortar, along with deductions for all the openings mentioned in the drawing and lintels over all the openings

Plan
* All dimensions are in meter

D = 1.2 x 2.1 m
W₁ = 1.4 x 1.2 m
W₂ = 1.0 x 1.2 m

Section of wall at A-A   FIG. NOT TO SCALE

(CO3) [Application]

11. Reduced level (R.L) of ground along the center line of a proposed road from chainage 14 to chainage 22 are given below. The formation level at 14th chainage is 108.6. Length of the chain is 30 meter. Draw the longitudinal section of the road and a typical cross section. The formation width of road is 12 m. Side slopes 1.5:1 in cutting and 2:1 in banking. The road formation is proposed at uniform falling gradient of 1 in 200 and it passes through ground line (GL) at 14th chainage.

Chainage	14	15	16	17	18	19	20	21	22
R.L of ground	108.6	109.25	109.4	108.85	108.5	107.25	106.8	107.15	107.2
Gradient	Down gradient 1 in 200								

(CO2) [Application]