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18CVL37

Third Semester B.E Degree Examination, July/August 2021
(CIVIL ENGINEERING)

COMPUTER AIDED BUILDING PLANNING AND DRAWING

Time: 3 Hours · Max. Marks: 100

NOTE:
1. Answer any **TWO** full questions from **PART A** and any **ONE** full question from **PART B**.
2. Assume any missing data suitably.

PART A

Q1 Draw plan and cross section of the septic tank for 25 users. The details are given below: Size (clear) of the septic tank (L x B) = (2m x 0.9m) Depth of liquid = 1.4m Free board = 0.3m Thickness of PCC bed in 1:3:6 = 0.2m Inlet and outlet pipe: 100mm diameter S. W. pipe Thickness of brick wall up to 0.6m height is 300mm and for remaining height it is 200mm. Thickness of RCC Baffle slab = 40mm RCC slab of 75mm thick is provided with 50mm diameter C. I. ventilating pipe Bed slope: 1 in 20 . **(25 Marks)**

Q2 Draw plan and sectional elevation of RCC dog legged staircase for an office buildingwhich measures 3m x 5.5m. The vertical distance between the floor is 3.3m (includinglanding). Thickness of the floor slab is 150mm. Provide steps with tread of 300mm andrise of 150mm. Thickness of waist slab and landing slab is 150mm. Width of stair is1.5m. Reinforcement details: main steel: 10ϕ @125 c/c spacing and distribution: 8ϕ @250 c/c spacing. **(25 Marks)**

Q3 Draw the longitudinal section and cross section of a rectangular RCC beam simply supported with the following data:
Clear span = 4.8m
Bearing at the supports = 300mm
Width of beam = 300mm
Overall depth of beam = 500mm
Main reinforcement consists of #5 - 20ϕ bars in two layers.
Provide #2 - 12ϕ as anchor bars.
Stirrups: 2L 8ϕ @ 180 c/c near the supports up to 1.20m and @ 220 c/c in theremaining portion
(25 Marks)

Q4 Draw the cross section of the peripheral feed circular sedimentation tank mechanical sludge removal equipment for given data. Diameter of the tank = 17.5m Depth of the tank = 3.0m RCC wall & slab thickness = 200mm Diameter of influent pipe, effluent pipe and sludge pipe = 200mm. Bed slope=8%. Thickness of RCC Baffle slab = 40mm. **(25 Marks)**

PART B

Q5 Line diagram of Single Storey residential building is given in figure Q5. Draw to scale the following:
a) Plan at sill
b) Front elevation
c) Section along AA.
d) Schedule of Openings **(50 Marks)**

Q6 Line diagram of School building is given in figure Q6. Draw to scale the following:
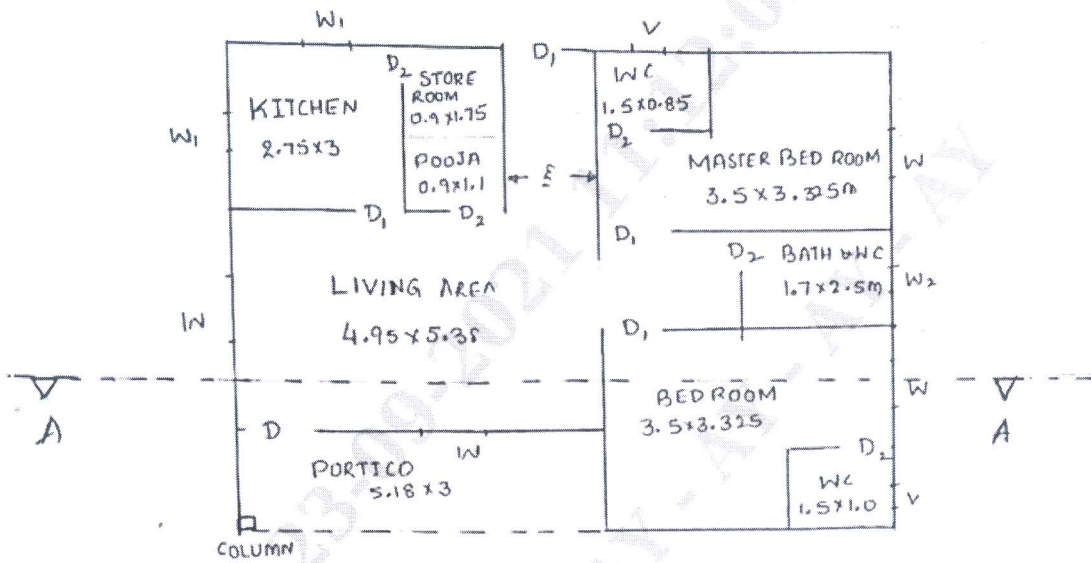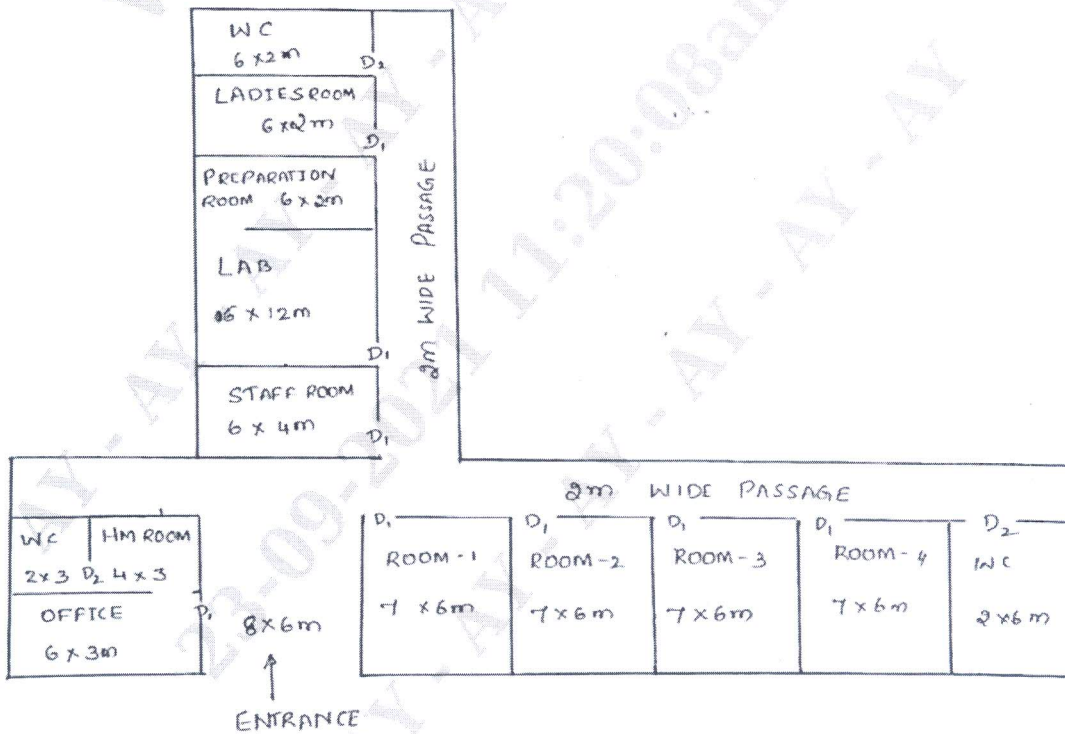a) Electrical Services
b) Plumbing and Sanitary Services **(50 Marks)**

Fig. Q5

Fig. Q6