

CBCS SCHEME

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 longitudinal section and cross section of a cantilever beam from the following data: Clear projection from the face of RCC column = 2500mm Size of column = 300mm x 300mm Size of beam at fixed end = 300mm x 300mm Size of beam at free end = 300mm x 150mm Reinforcement main bars: #5 - 20 ϕ with 2 bars curtailed at 1500mm from the support and show the curtailment plan. Compression bars: #3 - 16 ϕ Stirrups: 2L - 6 ϕ @ 200 c/c up to 1000mm from support and @ 300 c/c in remaining length. **(25 Marks)**
- Q2 One way continuous slab has been provided for a hall of clear dimensions 8mx14.25m. The slab is supported on RCC beams. The following details are given. C/C distance of supporting beams=3.5m. Column dimensions on which beam rest=250mmx500mm. C/s of beams=250mmx600mm. Slab thickness=150mm. Beam depth is inclusive of slab depth. Main positive reinforcement at the end and interior panels=10 ϕ @120 c/c Main negative reinforcement at all supports= 10 ϕ @120 c/c. Distribution steel =8 ϕ @ 250 c/c. Draw cross section and plan showing the details of reinforcement (Bottom & top). **(25 Marks)**
- Q3 Sketch the cross section of a rigid pavement in heavy rainfall area having the following particulars: Width of carriage way = 3.75m Camber (@ 2%) = 38mm Width of Shoulder = 1.5m Granular sub-base (GSB) = 250mm thick Dry lean concrete sub-base = 150mm thick Paving Quality Concrete layer = 240mm thick Total thickness of the pavement = 640mm. **(25 Marks)**
- Q4 Prepare a working drawing for an isolated column footing (RCC) for a column size 300mm x 300mm reinforced with #8 of 12mm HYSD- steel as main bars together with 2legged 8 ϕ stirrups at 200c/c. Details of footing: Size of footing is 1.6m x 1.6m and the thickness of the footing at the face of the column is 450mm which reduces to 300mm at the edge of footing. The mat comprises of 10 ϕ TOR- steel at 100 c/c both ways. The footing is provided with PCC bed in 1:3:6 of thickness 75mm. Depth of foundation is 1.5m from natural ground level. **(25 Marks)**

PART B

- Q5 Line diagram of Hospital building is given in **Figure Q5**. Draw to scale the following:
- a) Plan at sill
 - b) Front elevation
 - c) Section along XX.
 - d) Schedule of Openings
- (50 Marks)**
- Q6 Line diagram of Single Storey residential building is given in **Figure Q6**. Draw to scale the following:
- a) Plan at sill
 - b) Front elevation
 - c) Section along AA.
 - e) Schedule of Openings
- (50 Marks)**

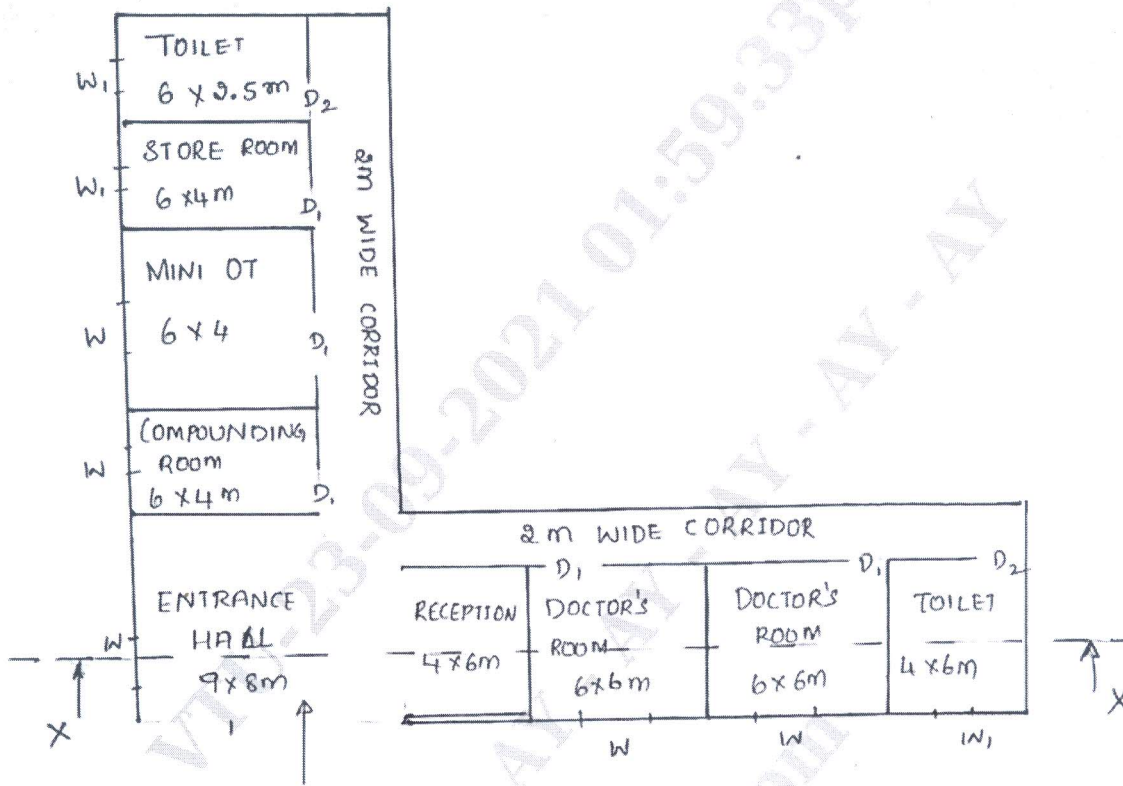


Figure Q5

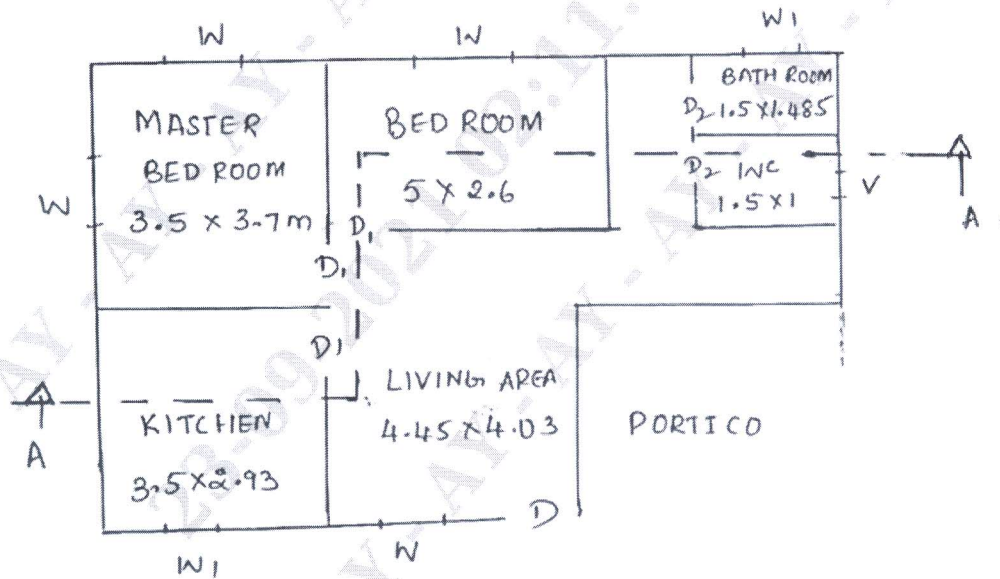


Figure Q6