Assignment 1

Q.1 Design a counterfort type retaining wall to following particular are here Height of the wall above the general ground level = 5.0m; Safe bearing capacity of the soil 162 kN/m^2; Angle repose of the soil 30° Weight of soil= 16000 N/m^3; Spacing of counterforts 3.25 m centers Use M25 and Fe 415 steel (Assume missing data yourself)

Q.2 Design a reinforced concrete cantilever type retaining wall having a 5.12 m tall stem. The wall retains soil level its top. The soil weighs 18741 N/m3 and has angle repose of 30°. The safe bearing capacity of the soil is 221kN/m^3. Only design the stem, Use M20 and fe 415 steel. (Assume missing data yourself).

Q.3 A spherical dome of a water tank of span 6.12 m has a rise of 1.221 m. it carries an all-inclusive distributed load of 600 N/m^2 and a lantern load of 800 N at the crown. Design the dome. Use M20 and fe 415 steel. (Assume missing data yourself).

Q.4 Design the reinforcement in a spiral column of 412 mm diameter subjected to a factored load of 1521 kN. The column has an unsupported length of 3.411 m and is braced against sideways use M 25 and Fe 415 steel. (Assume missing data yourself).

Q.5 Design a plain footing for a column, 300 mm x 300 mm, carrying an axial load of 330 kN. Assume an allowable soil bearing pressure of 360 kN/m^2 at a depth of 1.0 m below ground. Assume M20 and Fe 415. (Assume missing data yourself).

Q.6 Design the reinforcement in a column of size 450 mm x 600 mm, subjected to an axial load of 2000 kN under service dead and live loads. The column has an unsupported length of 3.0 m and is braced against sideways in both directions. Use M20 and fy 415 steel. (Assume missing data yourself).

Q.7 Design a reinforced concrete cantilever type retaining wall having a 5 m tall stem. The wall retains soil level its top. The soil weighs 18000 N/m3 and has angle repose of 30 degree.

The safe bearing capacity of the soil is $200kN/m^3$. Design the Toe slab and heel slab, Use M20 and fe 415 steel. (Assume missing data yourself).

Q.8 Design a reinforced concrete cantilever type retaining wall having a 5.23 m tall stem. The wall retains soil level its top. The soil weighs 18000 N/m3 and has angle repose of 32 degree. (Assume missing data yourself).

Q.9 Design a counterfort type retaining wall to following particular are here Height of the wall above the general ground level = 5.25 m; Safe bearing capacity of the soil 175 kN/m^2; (Assume missing data yourself)