GUJARAT TECHNOLOGICAL UNIVERSITY

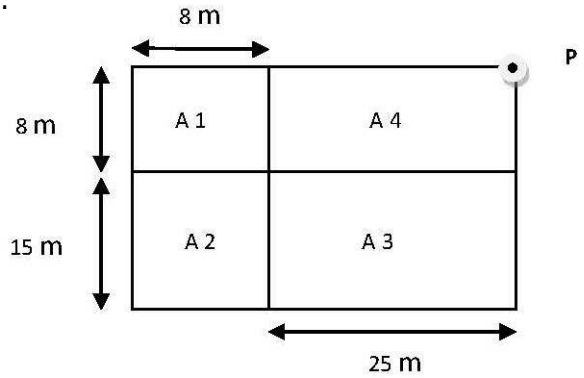
4th Semester Civil Engineering – PDDC

Subject Code & Name : X40603 - Soil Engineering

Tutorial – 2

Date : 05-04-2015

1. Determine the equation for concentrated load by Boussinesq Equation. (With assumptions).
2. Determine the equation for concentrated load by Westergaard's Analysis. (With assumptions).
3. What is pressure Bulb (Isobar)? Explain the Newmark's influence chart.
4. A water tank supported by a ring foundation having outer diameter of 12 m and inner diameter of 10 m. The ring foundation transmits uniform load intensity of 160 kN/m2. Compute the vertical stress induced at a depth of 4 m, below the centre of ring foundation, using (a) Boussinesq Equation and (b) Westergaard's Equation, taking μ = 0
5. A building in plan exerts a pressure of 140 kN/m2 on soil. Determine the vertical stress at a depth of 5 m below the outer corner P.



6. What is Earth pressure? Explain the active and passive earth state of plastic equilibrium.
7. Explain the Rankine's theory for active earth pressure for dry backfill with no surcharge.
8. Compute the intensities of active and passive earth pressure at depth of 8 m in dry cohessionless sand with angle of internal friction of 30º and unit weight of 18kN/m3. What will be the intensities of active and passive earth pressure if the water level rises to the ground level? Take saturated unit weight of sand as 22kN/m3.
9. A retaining wall 4 m high, has a smooth vertical back. The backfill has a horizontal surface in level with the top of the wall. There is uniformly distributed surcharge load of 36kN/m2 intensity over the backfill. The unit weight of the backfill is 18kN/m3; its angle of internal friction is 30º and cohesion is zero. Determine the magnitude and point of application of active pressure per meter length of the wall.
10. Explain the Swedish slip circle method for slop stability.
11. Explain the Friction circle method for slop stability.

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