Code No: 137CU

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, March - 2021
FOUNDATION ENGINEERING
(Civil Engineering)

Time: 3 Hours **Max. Marks: 75**

Answer any Five Questions
All Questions Carry Equal Marks

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1.a) Discuss about preparation of soil investigation report using boreholes.
b) Explain plate load test with the help of neat sketch. [8+7]

2.a) Discuss about stability analysis by Swedish slip circle method with a neat diagram.
b) An embankment is to be made from a soil with γ=18kN/m^3, c_u=22kN/m^2, ϕ_u=18^0. If FS of 1.5 with respect to shear strength is required for the embankment slope, determine the limiting height of the slope if slope angle is 25^0. Take Sn=0.045. [8+7]

3.a) Differentiate between Rankine's theory and Coulomb's theory of earth pressure.
b) A retaining wall of 8m high retains a cohesionless backfill with ϕ = 32^0 and γ=18kN/m^3. Determine the earth pressure for at rest condition. Also, if the water table rises to the top of the wall, determine the increase in the thrust on the wall assuming the submerged unit weight as 10.5kN/m^3. [8+7]

4.a) Discuss about choice of foundation in different field conditions.
b) A continuous footing of width 2m rests 1.5m below the ground surface in cohesive soil. The unconfined compressive strength of the clay is 200kN/m^2. Calculate the ultimate bearing capacity of the footing. Take unit weight of soil as 14.5kN/m^3. [8+7]

5.a) Discuss about pile load test in deep foundations.
b) A 400mm wide square in section concrete pile of 12m long is driven into a deposit of uniform clay. Laboratory unconfined compressive strength is 100kN/m^2. Determine the ultimate pile load capacity. Take α = 0.8. [7+8]

6.a) Explain Culmann's graphical method with a neat sketch for active pressure.
b) Discuss about stability of slopes of earth dams under different conditions. [7+8]

7.a) Outline about different types of retaining walls with neat sketch.
b) Explain about Terzaghi's theory of shallow foundations. [8+7]

8.a) Discuss the necessity of pile foundations.
b) Explain about tilts and shifts of well foundations. [7+8]

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