

KATIHAR ENGINEERING COLLEGE, KATIHAR
CIVIL ENGINEERING, 4th Year (Semester-VII)

Subject: Foundation Engineering

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Assignment 1

1. What do you understand by site investigation? What are different purposes for which site investigation are done?
2. Describe plate load test. What are its limitations and uses?
3. What are different types of shear failure in foundation?
4. What are the advantage and disadvantage of (a) plate load test and (b) standard penetration test(SPT)
5. A rectangular footing (3m x 2m) exerts a pressure of 100 kN/m^2 on a cohesive soil ($E_s = 5 \times 10^4 \text{ kN/m}^2$, $I = 1.06$ and $\nu = 0.50$). Determine the immediate settlement at the centre.
6. What are the various corrections in standard penetration test?
7. Determine the ultimate bearing capacity of a strip footing 1.5 m wide and having depth of the foundation of 1.0 m. Use Terzaghi theory and assume general shear failure. Take $\phi = 30^\circ$, $\gamma = 18 \text{ kN/m}^3$, and $c' = 15 \text{ kN/m}^2$, $N_c = 37.2$, $N_q = 22.5$, $N_\gamma = 19.7$.
8. Write short notes on the following
 - (a) Effect of water table on bearing capacity of soil
 - (b) Stages of site investigation
 - (c) Cone penetration Test (CPT test)
 - (d) Safe bearing capacity
 - (e) Site exploration