16+2 = (18)

SHAHEED BHAGAT SINGH STATE TECHNICAL CAMPUS, FEROZEPUR

ROLL No: | | | | | | | | | | | | | **Total number of pages:[2]**

B. Tech. || CE || 6th Sem

Foundation Engineering

RP

Subject Code:BTCE-603

Paper ID: 2011 - 2014 Batch

Time allowed: 3 Hrs **Max Marks: 60**

Important Instructions:

- **All questions are compulsory**
- **Assume any missing data**

Section-A (10 x 2 = 20 marks)

Q. 1. Short-Answer Questions:

(a) What is the objective of soil exploration.
(b) What are different types of earth pressure.
(c) What are different causes of settlement.
(d) What are the factors that influence the bearing capacity of soil.
(e) Differentiate between local shear failure and punching shear failure.
(f) What are geostatic stresses.
(g) Write down the corrections to be applied in observed 'N' values during SPT.
(h) Differentiate between safe bearing capacity and allowable bearing pressure.
(i) Differentiate between friction piles and end bearing piles.
(j) Write a short note on pneumatic caisson.

Section-B (5 × 8 = 40 marks)

Q 2 Explain in detail the different methods used to obtain the soil samples along with their advantages and disadvantages.

Or

Discuss in detail about standard penetration test. What is its importance. What are the various corrections applied. **[CO1]**

Q 3. What are the assumptions of Rankine's theory. Derive the expressions for active pressure and passive pressure.

Or

Discuss Culmann's method for the determination of active earth pressure. **[CO2]**

Q 4. Discuss the effect of water table on bearing capacity of soil.

Or

a) Explain the different types of shallow foundations.

b) Discuss various types of loads that are to be considered in the design of foundations. **[CO3]**

5. Determine group capacity of pile group consisting of 15 piles (300mm) arranged in 3 rows if the piles are driven 8m into clay with $c = 25KN/m^2$, pile spacing is 0.8m and $f_s = 25KN/m^2$, $\alpha = 1$, $\gamma_b = 10KN/m^3$

Or

Describe plate load test for the determination of bearing capacity of soil along with its limitations. **[CO4]**

6. Draw the section of a well foundation and mention the components of a well foundation. What is the criteria for selecting the depth of a well.

Or

What is the basic difference between a drilled pier and a caisson. Describe the various components of a pneumatic caisson with the help of a neat sketch. **[CO5]**