Roll No. ☐☐☐☐☐☐☐☐☐☐☐☐☐   **Total No. of Pages : 02**

Total No. of Questions : 09

B.Tech.(CE) (2011 Onwards) (Sem.–6)
# FOUNDATION ENGINEERING
Subject Code : BTCE-603
Paper ID : [A2290]

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

INSTRUCTION TO CANDIDATES :
 1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
 2. **SECTION-B contains FIVE questions carrying FIVE marks each and students has to attempt any FOUR questions.**
 3. **SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.**
 4. **Assume any data suitably.**

SECTION-A

 Q.1   **Write briefly :**

   a. Define the term Net ultimate bearing capacity.

   b. Write the Boussinesq's equation for a point load.

   c. Differentiate between immediate and consolidation settlement.

   d. How the spacing of boreholes is fixed?

   e. Explain the limitations of elastic formula.

   f. Differentiate between point resistance and frictional resistance.

   g. List the types of Pile foundations.

   h. What are the causes of settlement of foundations?

   i. Explain the essential features of a stationary piston sampler.

   j. What is Passive Earth Pressure?

SECTION-B

Q.2. What are the precautions to be cared for during sinking of wells? How are tilts and shifts of wells rectified?

Q.3. Determine the passive pressure by rankine theory per unit run for retaining wall 4 m high with i = 15°, φ = 36 and γ = 19KN\m^3, the backface of the wall is smooth and vertical.

Q.4. Explain the behaviour of a pile group in clay and sand.

Q.5. How do you proportion the footings for equal settlements?

Q.6. Explain the Working of Rotary Sampler.

SECTION-C

Q.7. A footing 4 m × 4 m is located at a depth of 1.5 m below G.L. in a deep deposit of homogeneous cohesionless soil which has γ = 1.9 t/m^3 and average corrected N value as 23. The water table is 2.0 m below ground surface. Find the net bearing capacity for a permissible settlement of 35 mm.

Q.8. Explain the essential parts of a Pneumatic caisson.

Q.9. A 300 mm square pile 12 m long is driven in a deposit of sand with Φ = 35 degree (For Φ = 35 degree, assume N_q = 40, N_y = 32). The unit weight of sand is 16 kN/m^2. What is the allowable load, assuming a factor of safety = 3 and lateral earth pressure coefficient = 0.6.