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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(CE) (2011 Onwards) (Sem.-6)

**FOUNDATION ENGINEERING**

Subject Code : BTCE-603

M.Code : 71084

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 have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

**SECTION-A****Q1) Answer briefly :**

- a) What do you understand by significant depth of soil exploration?
- b) List down factors affecting bearing capacity for soils.
- c) Define safe bearing capacity
- d) Define Floating foundation.
- e) Discuss briefly utility of batter piles.
- f) List down effects of negative skin friction.
- g) List out the various methods of site exploration.
- h) Define allowable bearing capacity.
- i) Calculate the active earth pressure give that  $C = 20\text{kN/m}^2$  and unit weight of the soil being  $20\text{kN/m}^3$  for a vertical cut of depth 3 m. The soil is cohesion- less soil.
- j) Write assumptions of coulomb's theory.



**SECTION-B**

- Q2) Write short note on bore log report with neat sketch.
- Q3) Write the essential features and applications of Rotary sampler.
- Q4) A circular foundation is 2.4 m diameter. If the depth of foundation is 1 m, determine the net allowable load. Take  $c = 30 \text{ kN/m}^2$  and unit wt.  $= 19.0 \text{ kN/m}^3$   $\phi = 15^\circ$  and factor of  $\phi$  and safety as 3.0. Use Terzaghi's equation and assume local shear failure. Take value of  $N_c$ ,  $N_q$  and  $N_y$  as 12.9, 4.4 and 2.5 respectively.
- Q5) Explain the parts of a Pneumatic caisson with figure.
- Q6) Give comparison of Rankine's and Coulomb's theory.

**SECTION-C**

- Q7) Derive Boussinesq equation for a point load.
- Q8) Define pile foundation. Discuss about the types of pile and their functions.
- Q9) What are the different methods of soil stabilization? Explain with neat sketches.

**NOTE : Disclosure of identity by writing mobile number or making passing request on any page of Answer sheet will lead to UMC case against the Student.**