

Roll No .....

**CE-8002 (CBGS)****B.E. VIII Semester**

Examination, May 2019

**Choice Based Grading System (CBGS)****Geo-Technical Engineering - II**

Time : Three Hours

Maximum Marks : 70

- Note: i) Attempt any five questions.  
ii) Make suitable assumptions wherever necessary.

1. a) State different types of shallow and deep foundations. In which circumstances, pile foundation shall be adopted? 7  
b) With neat sketches describe different modes of bearing capacity failures. 7
2. a) Explain the theories of bearing capacity of Terzaghi and Skempton. 7  
b) In a 16 pile group, the pile diameter is 45 cm and center to center spacing of the square group is 1.5m. If  $C = 50 \text{ kN/m}^2$ , determine whether the failure would occur with the pile acting individually, or as a group? Neglect bearing at the tip of the pile. All piles are 10 m long. Take  $m = 0.7$  for shear mobilization around each pile. 7
3. a) Explain different types of piles. 7  
b) How do you estimate the group capacity of piles in sand and clay? 7
4. a) Explain the proctor compaction tests and factors affecting compaction. 7  
b) Discuss about the soil stabilisation of mechanical lime, cement and by grouting. 7

5. a) What are the basic modes of failure of earth slopes? What are the remedial measures to prevent failure of earth slopes. 7  
b) State different types of foundations and define the important terms Safe Bearing Capacity (SBC), Safe Bearing Pressure (SBP) and Allowable Bearing Pressure (ABP). 7
6. a) What do you mean by pile group efficiency? Explain any one method to find it. 7  
b) A strip footing 1.5 m wide, rests on the surface of a cohesionless soil having  $\phi = 20^\circ$  and  $\gamma_t = 16 \text{ kN/m}^3$ ;  $\gamma_{sat} = 18 \text{ kN/m}^3$ . If the water table rises temporarily to the surface due to flooding, calculate the percentage reduction in the ultimate capacity of the soil. Assume  $N_q = 7.4$ ,  $N_y = 5.0$ . 7
7. a) What are the advantages and disadvantages of providing traffic signals? <http://www.rgpvonline.com> 7  
b) Explain the Plate Load Test. 7
8. a) What are the criteria for design of block foundation for the impact type of machine. 7  
b) Discuss about the planning of exploration programme for buildings. 7

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