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Roll No

CE-801 (GS)**B.E. VIII Semester**

Examination, May 2018

Grading System (GS)**Geo. Technical Engineering - II***Time : Three Hours**Maximum Marks : 70**Note:* i) Attempt any five questions.

ii) All questions carry equal marks.

iii) Assume any missing data suitably if necessary.

1. a) Explain the assumptions made in Terzaghi's theory of shallow foundation. Define net and ultimate bearing capacity terms. 7
- b) A strip footing which is 1.5 m wide is resting on a dry sand at a dept of 2.0 m. Determine the ultimate bearing capacity and safe bearing capacity of footing. The soil properties are $\gamma_d = 17 \text{ KN/m}^3$, $\phi' = 38^\circ$ and $c' = 0$, FOS = 3. Take $N_q = 60$, $N_\gamma = 75$ for $\phi' = 38^\circ$. 7
2. a) Describe the SPT method in brief. Also apply over burden and dilatancy correction on 'N' value. 7
- b) Explain following terms: $2 \times 3 \frac{1}{2} = 7$
 - i) Proportioning of footings
 - ii) Total and differential settlement of footing

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3. a) Give the classification of various types of piles. 7
- b) A concrete pile 10 m long was driven by a single drop Hammer weighing 18 kN having free fall 1.0 m. The penetration of cast blow is 6 mm. Determine the allowable load carrying capacity of pile. Use engineering news formulae. 7
4. a) Describe the different types of Caisson used in deep foundation. rgpvonline.com 7
- b) Discuss the method of well sinking. 7
5. a) Discuss the following: 7
 - i) Group action of piles
 - ii) Effect of water table on bearing capacity
- b) Describe the plate load test. Discuss also its limitations. 7
6. a) Describe the different factors affecting the compaction of soil. 7
- b) Describe the Geosynthetics used for soil improvement technique. 7
7. a) Describe the Geophysical methods of soil exploration. 7
- b) Explain the following: 7
 - i) Disturbed and undisturbed samples
 - ii) CNS layer
8. a) Give the classification of short piles. 7
- b) Explain the mass-spring analogy. Define the natural frequency. 7