Roll No .....

MVCT/MBCT/MVCP - 103

M.E./M.Tech., I Semester

Examination, June 2014

Advanced Geotechnical Engineering

Time : Three Hours *Maximum Marks : 70*

Note : i) Attempt any five questions.
ii) Assume suitably if any data is found missing or misprint.

1. a) State various methods of subsurface exploration and explain any one method in detail.
   b) Explain contact pressure distribution in detail.

2. a) Explain any one Geophysical method of investigations of sub-soil strata.
   b) Explain various steps of well sinking.

3. a) Describe pneumatic caisson giving its advantages and disadvantages.
   b) Define and draw sketches of different types of cofferdams. Also give suitability of each type of cofferdam.

4. a) Discuss various design criteria according to Indian standard code for foundation of Impact Type Machine.

   b) Resonance occurred at a frequency of 22 cycles per second in a vertical vibration test of a block 1m×1m×1m Determine the coefficient of elastic uniform in compression of the soil given that the weight of the oscillator is 65 kg and that the force produced by it at 12 cycles per second is 100kg. Also compute the amplitude in vertical direction at 12 cycles per second.

5. a) Explain the following :
      i) CNS layer technique.
      ii) Expansive soil and collapsible soil.
   b) Define under-seamed pile and discuss its design criteria.

6. a) Explain the identification of expansive and collapsible soil.
   b) Explain how the rocks are classified.

7. a) Explain various properties of rocks.
   b) What are the various laboratory test for determining strength of rock? Explain point load strength test in detail.

8. Write short notes on any four of the following :
   a) Newmark's Influence Chart.
   b) Types of machine foundations.
   c) Inter lock stresses.
   d) Rock mechanics.
   e) Construction on collapsible soils.
   f) Scope of rock mechanics in civil-engineering project.

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