Total No. of Questions :8] *[Total No. of Printed Pages :2*

 Roll No.....

MVCT/MBCT/MVCP-103

M.E./M.Tech. I Semester

Examination, June 2017

Advanced Geotechnical Engineering

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.
ii) All questions carry equal marks.
iii) Assume suitable data if missing.

1. a) Explain in brief about the geophysical exploration method for soil strata investigations. Also explain the method of interpretation of data. 7
   b) Discuss the phenomenon of settlement of footing in clay. Define clearly about immediate elastic, consolidation, secondary consolidation settlement and total settlement. 7

2. a) Discuss the concept of "vertical pressure under a uniformly loaded circular area." Write in brief on "New mark's influence chart." 7
   b) Discuss the role of bearing capacity in well foundation and how it effect the depth of foundation. 7

3. a) List the various forces acting on a well foundation. Also describe the significance of each force. 7
   b) Describe the following terms related to well foundation - well curb, cutting edge, steining and bottom plug. 7

4. a) By drawing figure show common types of coffer dams. 5

   b) An anchored sheet-pile wall is to support a mass of cohesionless soil, upto a height of 5 metres above the ground level with the horizontal surface. The anchor ties are 1m below the top at a horizontal spacing of 1m. Density of soil is 24 kN/m^3 and $\phi = 28°$. Find the minimum depth of anchor for the pile neglecting the function on the surface of the pile. 9

5. a) Describe the various inputs for design a block foundation for a machine having high degree of vibrations. 7
   b) Write short note on: 7
      i) Vertical rocking vibration
      ii) Degree of freedom system
      iii) Mass spring model analysis

6. a) Write and describe in brief of various precautions if construction is proposed on expansive soil. 5
   b) What is CNS layer? Discuss functioning of it. 5
   c) Briefly write about the role of consolidation in ground improvement. 4

7. a) Describe the various properties of rock to be determine for its assessment as a civil engineering use. 7
   b) What is RQD? Discuss the strength of rock mass based on RQD. 7

8. Write short note on 14
   a) SPT method of sampling
   b) Types of Caissons
   c) Design data for coffer dam
   d) Allowable settlement in buildings

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