

MVCT/MBCT/MVCP-103**M.E./M.Tech., I Semester**

Examination, December 2016

Advanced Geotechnical Engineering*Time : Three Hours**Maximum Marks : 70***Note :** i) Answer any five questions.

ii) Assume data suitably wherever required

1. a) Discuss the westergaard's solution for stresses developed due to applied load in soil. 4
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b) What is isobar diagram?
c) An elevated structure with a total weight of 10000 kN is supported on a tower with 4 legs. The legs rest on piers located at the corners of a square 6m on a side. What is the vertical stress increment due to this loading at a point 7m beneath the centre of structure. 7
2. a) What is penetration sampling? Describe the concept of electrical resistivity method. 7
b) The liquid limit of a normally consolidated clay is 80%. What are its approximate compression index C_c and secondary compression Index C_α value. 7
3. a) Draw neat figure of typical well foundation and show its various components. Discuss the parameter responsible for deciding depth of well foundation. 7
b) Explain the term sinking of well, well steining and tilt. 7

4. a) List the common type of coffer dam commonly used in practice, discuss any two in detail. 7
b) Write any one method for designing of cellular coffer dam on rocks. 7
5. a) Write the general criteria for design of machine foundation. What is damped and undamped vibrations. 7
b) Write the procedure for determining natural frequency. 7
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6. a) Discuss the settlement of pile group in cohesionless soil and clayey soil. 7
b) What is CNS layer, explain how is it function? Write the specifications of soil suitable as CNS layer. 7
7. a) Discuss the point load strength test and sonic velocity test of rock. Also write significance of these tests. 7
b) What is RQD and how is it determined? 7
8. Write short note on : 14
a) New mark influence chart
b) Types of caissons
c) Engineering classification of rock
d) Block foundation design
