

MVSE - 301(B)

M.E./M.Tech. III Semester Examination, June 2016

Advance Foundation Engineering (Elective-I)

Time : Three Hours

Maximum Marks : 70

Note: Attempt any five questions.

1. a) Enlist the design data required for designing cellular cofferdam. Explain stability analysis of cofferdam. 7
b) What are various methods of boring for collecting soil samples? How boring records are kept? <http://www.rgpvonline.com> 7
2. a) Compare "Geophysical methods" with "Dynamic methods" of soil exploration giving examples of each. 7
b) Explain with diagram, how settlement and tilt of eccentrically loaded footings is governed by constitutive laws. 7
3. a) Explain the following: 8
i) Beams on elastic foundation, ii) Allowable settlement in plate load test.
b) What are the various dynamic methods of analysis of pile load? Explain any one in detail. 6
4. a) Explain the following: 8
i) Settlement of pile groups ii) Efficiency of pile groups.
b) What are different practical considerations in cellular cofferdam design? 6
5. a) Explain theory of linear weightless spring. 7
b) Explain analysis of block foundation based on elastic half space theory. 7
6. a) How the foundations for impact type machines differ from the foundations for reciprocating machines? 7
b) Explain the following: 7
i) Equivalent soil spring ii) Rocking vibration
7. a) Write the design criteria as per IS code for foundations of impact type machine. 7
b) Explain the following: 7
i) Standard Penetration Test ii) Interlock stresses in Cofferdams
8. Write short notes on any four of the following: $3\frac{1}{2} \times 4 = 14$
 - a) Influence of pile cap
 - b) Batter pile under lateral load
 - c) Negative skin friction
 - d) Soil samplers and sampling techniques
 - e) Indirect methods of soil exploration
 - f) Elastic half space theory