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Total No. of Pages : 02

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M.Tech (Soil Mechanics & Foundation Engineering) (Sem.-3)

SUB-SURFACE OF GEOPHYSICAL EXPLORATION

Subject Code : CESE-10

M.Code : 37202

Date of Examination : 14-12-22

Time : 3 Hrs.

Max. Marks : 100

INSTRUCTION TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWENTY marks.

1. a) What is significant depth? How do you decide significant depth for various civil engineering Structure ?

b) How you will decide number and spacing of bore holes in the following circumstances:
 - i) A twelve storey office building to cover a Plan area of 300 m × 200 m
 - ii) One km stretch of a National Highway.

Justify your answer with suitable codal provision or otherwise.

2. The following data refers to pile load test on a circular pile of diameter 250 mm and length of 10 m. Determine the allowable load of the pile according to codal provisions:

Load on pile (kN)	150	200	250	300	350	400	600	650
Total Settlement (mm)	1.35	2.15	2.65	3.55	3.65	5.55	28.90	64

3. a) Describe pumping out methods for determination of the co-efficient of permeability in the field. What are their advantages and disadvantages?

b) Why there is a need for speedy moisture tester in the field? How moisture is measured in the field using speedy moisture tester?
4. a) Compare Resistivity and Seismic Methods highlighting shortcomings of each.

b) How would you conduct an in-situ Vane Shear Test?

5.
 - a) List the advantages and disadvantages of Large Shear Box Test.
 - b) Discuss three interesting case studies of soil exploration tests.
6. How the results of SPT are used for design and determination of modulus of deformation? What is the importance of determining Modulus of deformation?
7.
 - a) What is Wave Propagation Test? What is its importance in Geotechnical Engineering?
 - b) Distinguish between Representative sample and Disturbed Sample.
8. Write short notes on :
 - a) Dynamic Cone Penetration Test
 - b) Percussion Drilling :

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.