Reg No.:_____   Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
FIFTH SEMESTER B.TECH DEGREE EXAMINATION, APRIL 2018

Course Code: CE363
Course Name: GEOTECHNICAL INVESTIGATION
(Graph sheet may be provided on request)

Max. Marks: 100   Duration: 3 Hours

PART A
Answer any two full questions, each carries 15 marks

Marks

1 a) Explain stabilization of borehole using Bentonite slurry. (5)
   b) Which methods of soil explorationcan be adopted for rock? Describe any one of the methods. (5)
   c) Compare wash boring and auger boring, regarding the applicable soil types and depths. (5)
2 a) What are the objectives of soil exploration? (5)
   b) Differentiate preliminary investigation and detailed investigation. (5)
   c) Mention the guidelines for deciding the depth of boreholes. (5)
3 a) With a neat figure explain the experimental procedure for plate load test. (10)
   b) How is the allowable soil pressure for a given settlement estimated from plate load test results? (5)

PART B
Answer any two full questions, each carries 15 marks

4 a) Explain dilatancy correction to be applied to the N value. (5)
   b) List out the factors influencing SPT value. (5)
   c) The field N value in a deposit of fully submerged fine sand was 47 at a depth of 7m. The average saturated unit weight of the soil is 19kN/m^3. Calculate the corrected N value. (5)
5 a) Explain the procedure for conducting SPT test with neat figure. (10)
   b) Write the principle behind the seismic refraction method. (5)
6 a) Explain Electrical Resistivity Method. (10)
   b) What is the principle of pressure meter test? (5)

PART C
Answer any two full questions, each carries 20 marks

7 a) What are the precautions to be adopted during the transportation of sample? (5)
   b) Explain any two types of samplers used for undisturbed soil sample. (10)
   c) If the external diameter of a sampling tube is 75 mm and area ratio is 20%, determine the thickness of sampling tube. (5)
8 a) What is a borelog and draw an example of borelog? (5)
   b) Draw neat sketches of thin walled sampler and split spoon sampler. (5)
   c) A 30 cm pile of length 14m was subjected to a pile load test and the following results were obtained. (10)

Load (kN)	0	500	900	1300	2000	2400
Settlement duringloading (cm)	0	0.8	1.5	2.4	3.9	5.5

   Determine the allowable load as per I.S.
9 a) Explain the procedure of static pile load test for estimation of safe load. (10)
   b) What are the salient features of a sub soil investigation report? With a neat sketch, explain the term 'soil profile'. (10)

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