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GIET UNIVERSITY, GUNUPUR – 765022
 M. Tech (First Semester – Regular) Examinations, June – 2021
MPECT1053 – Geotechnical Investigations for Construction Projects
 (Construction Technology and Management)

Time: 2 hrs

Maximum: 50 Marks

The figures in the right hand margin indicate marks.

PART – A

(2 x 10 = 20 Marks)

Q1. Answer **ALL** questions

- a. State the objectives of site investigation.
- b. Give the correlations for finding Pressure meter modulus (E_p) and undrained cohesion (C_u) in Pressure meter test.
- c. List the tests that could be conducted on disturbed or representative samples.
- d. Sketch a typical bore log sheet.
- e. Brief on the materials used for preservation of samples.
- f. What are the limitations of plate load test?
- g. How does moisture content influence compaction in field?
- h. Give the suitability of soil for cement stabilization.
- i. Give a brief note on thermal stabilization.
- j. What are the advantages of using vertical drains along with preloading

PART – B

(6 x 5 = 30 Marks)

Answer ANY FIVE questions

Marks

2. Can Highly Weathered Rock (HWR) be treated as a soil for estimating the safe bearing capacity (SBC)? Justify your answer. **(6)**
3. Explain the mapping of lateral and vertical changes in geological materials using electrical resistivity method. **(6)**
4. Standard Penetration Test(SPT) is performed on a soil profile consisting of coarse sand to a depth of 4.5m with unit weight of 18kN/m^3 followed by fine sand with submerged unit weight of 8kN/m^3 . Water table is at a depth of 3m from ground surface. The SPT N-values are given below: **(6)**

Depth of exploration(m)	Observed N-value
1.5	10
3.0	19
4.5	25
6.0	16

Provide the corrected N-value.

5. Discuss the effect of lime and cement on physical and engineering properties of soft clay (6)
6. What are the different methods of field compaction? Brief on them. (6)
7. Compare and contrast the vibroflotation and sand compaction piles method to densify the granular soils with neat sketches (6)
8. Describe with neat sketches the grouting procedure in jet grouting. (6)

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