BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: M.TECH   SEMESTER : II
BRANCH: CIVIL   SESSION : SP/19

SUBJECT : CE519 SUB-SURFACE INVESTIGATION

TIME: 3.00 Hrs.   FULL MARKS: 50

INSTRUCTIONS:
1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Before attempting the question paper, be sure that you have got the correct question paper.
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

Q.1(a)   What are the objectives of site investigation? List the information obtained from subsurface exploration.   [5]
Q.1(b)   Define (i) Area ratio, (ii) Inside clearance, (iii) Outside clearance, (iv) Recovery ratio   [5]

Q.2(a)   What are the different types of boring methods? Discuss briefly.   [5]
Q.2(b)   How to fix the number and depth of boreholes? Define significant depth.   [5]

Q.3(a)   Compare between Standard penetration test, Static cone penetration test, and Dynamic cone   [5]
         penetration test.
Q.3(b)   Explain seismic refraction method of soil exploration.   [5]

Q.4(a)   What are the limitations of plate load test?   [3]
Q.4(b)   Illustrate pressure-meter test.   [3]
Q.4(c)   The water in a borehole was bailed to a depth of 11 m below the ground level and the recorded rise in
         the water level in the borehole were as follows:
         h_1 = 60 cm in 24 h, h_2 = 55 cm in 24 h, h_3 = 50 cm in 24 h. Determine the average to the water table.   [4]

Q.5(a)   Write a short note on offshore exploration.   [4]
Q.5(b)   Discuss the different steps of writing subsoil investigation report.   [6]

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