

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

**CLASS:M.TECH  
BRANCH:CIVIL(SMFE)**

**SEMESTER :II  
SESSION : SP/22**

**SUBJECT: CE519 SUB SURFACE INVESTIGATION**

**TIME:2HRS**

**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.
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- Q.1(a) Define (i) Area ratio, (ii) Inside clearance, (iii) Outside clearance & (iv) Recovery ratio. [5]  
Q.1(b) Differentiate between (i) Disturbed and Undisturbed samples & (ii) Representative and Non Representative samples. [5]
- Q.2(a) Describe the process of Wash Boring. [5]  
Q.2(b) Write note on Depth of Borehole. [5]
- Q.3(a) Describe the Standard Penetration Test and comment on the utility. [5]  
Q.3(b) Explain Electrical Resistivity method of geophysical exploration. [5]
- Q.4(a) Explain the Plate Load Test and comment on the limitations. [5]  
Q.4(b) Considering radial flow to a well, derive the expressions for Permeability in case of unconfined aquifer. [5]
- Q.5(a) Write note on Offshore exploration. [5]  
Q.5(b) Describe the Methodology of report writing for site investigation. [5]

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