

**M.E. CIVIL ENGINEERING FIRST YEAR  
SECOND SEMESTER EXAM 2025**

**SUBJECT: SOIL EXPLORATION, FIELD INSTRUMENTATION AND CASE STUDIES**  
(Name in full)

**PAPER ××××**

**Time: Three hours**

**Full Marks =60**

No. of  
Question

CO      Marks

*1) Answer question number 1, question number 2 and question number 3.  
No question should be non-attempted among this 3 questions.  
2) Assume reasonable values of data if it is not supplied.  
3) There is no need of any code etc. for answering Part-II.  
4) In the cases where excess number of questions will be answered exceeding the required number of question/s, the first required number of question/s will be evaluated only.*

Sl. No.

Question

*Answer any one between 1 (a) to 1 (b)*

1 (a) Write down the purpose and objectives of soil exploration. [NA] [7]

(b) How to plan for a soil exploration program? [NA] [7]

*Answer any one between 1 (c) to 1 (d)*

1 (c) Show the methods of soil exploration with a tree structured classification. Write short note on direct methods of soil exploration. [NA] [4+7]

(d) Show the types of conventional soil sample collection methods (with a tree structured classification). Write short note on undisturbed sampling method of soil sample collection. [NA] [4+7]

*Answer any one between 1 (e) to 1 (f)*

1 (e) How many types of samplers are generally used for soil sampling? Discuss about open tube sampler. [NA] [7]

(f) Write short notes on : Wash Boring [NA] [7]

*Answer any one between 2 (a) to 2 (b)*

2 (a) Write down the advantages and disadvantages of SPT. [NA] [7]

(b) Write down the advantages and disadvantages of SCPT. [NA] [7]

*Answer any one between 2 (c) to 2 (d)*

2 (c) Compare between Static Cone Penetration Test and Standard Penetration Test. What precautions should be taken during SPT. [NA] [4+7]

(d) Compare between Static Cone Penetration Test and Dynamic Cone Penetration Test. What short notes on plate load test. [NA] [4+7]

*Answer any one between 2 (e) to 2 (f)*

2 (e) Write short notes on : Corrections to Measured Standard Penetration Resistance (N). [NA] [7]

(f) Write short notes on : Vane shear test. [NA] [7]

3 (a) Write down about the application of Remote sensing in subsoil classification. [NA] [10]

M.E. CIVIL ENGINEERING EXAMINATION 2025  
[1<sup>st</sup> Year; 2<sup>nd</sup> Semester Exam 2025]  
**Soil Exploration, Field Instrumentation and Case Studies**

**Part II**

Total Time: Three Hours

Full Marks 100  
(Part I: 60 + Part II: 40)

*Use a separate Answer-Script for each part*

**Part II (40 Marks)(All CO4)**

Answer All

1. Explain the types of possible mechanisms for LVDTs with neat sketches for all the cases. (10)
2. Explain the types of inclinometers with possible working mechanisms with neat sketches for all the cases. (10)
3. Referring the Figure 1, explain what are the possible monitoring devices that can be attached with the retaining wall and why? (10)
4. Explain, with neat sketches, the working/operating mechanism (with applicable equations/relations) of (i) vibrating wire type strain gauges, and (ii) foil type strain gauges. (10)



Figure 1 Sheet Pile Retaining Wall (Q. No. 3)