

Seat No.:	Q. Paper Code: FTC-A-011			SET	A	
	Fabtech Technical Campus, College of Engineering & Research, Sangola					
	(An Autonomous Institute)					
	Geotechnical Engineering					
	Academic Year: -2025-26, Semester-I					
Geotechnical Exploration and Instrumentation (25PCE11173)						
Regular End Semester Examination Winter 2025-26 [Dec./Jan]						
Class:	F. Y. M. Tech.	Day & Date:	Monday, 05/01/2026			
Duration:	03 Hrs.	Max. Marks:	60 Marks			
Time:	11:00 AM TO 02:00 PM					
Instructions:						
1) All Questions are compulsory. 2) Figures to the right indicate full marks. 3) Draw neat diagram wherever necessary. 4) Make suitable assumptions if necessary and state it clearly. 5) Use of non-programmable calculator is allowed.						
Q. No.	Questions			Marks	CO	BL
Q. 1	Attempt any two of the following			12		
1	Explain the processes involved in soil formation (pedogenesis) and list the key factors influencing it.			6	1	2
2	Differentiate between physical and chemical weathering, providing examples of each and their respective roles in soil formation.			6	1	3
3	Describe the phenomena of soil transport, deposition, and stratification. Explain how these processes contribute to the formation of different soil types.			6	1	2
Q. 2	Attempt any two of the following			12		
1	What is the primary purpose of soil exploration in a construction project?			6	2	2
2	Briefly describe the hand auger method of boring and its limitations.			6	2	3
3	For which soil conditions is the Wash Boring method most suitable?			6	2	2
Q. 3	Attempt any two of the following			12		
1	Differentiate between disturbed and undisturbed soil samples.			6	3	2
2	Explain the "zig-zag" method of soil sampling for whole-field management.			6	3	3
3	What are the key factors to consider when choosing containers for soil samples?			6	3	2
Q. 4	Attempt any two of the following			12		
1	Define borehole logging and state its primary purpose in geotechnical and hydrogeological investigations.			6	4	2

2	Differentiate between geological well logging and geophysical well logging.	6	4	3
3	Explain the principles and applications of the following logging methods: (a) Natural Gamma Ray Logging and (b) Resistivity Logging.	6	4	2
Q. 5	Attempt any two of the following	12		
1	What is the Standard Penetration Test (SPT)? Explain its procedure and the significance of the N-value.	6	5	2
2	Describe the Vane Shear Test (VST) and its applicability. Why is it unsuitable for sandy soils?	6	5	3
3	Explain the Plate Load Test (PLT). What are its primary objectives?	6	5	2