

Enrolment Number: \_\_\_\_\_

PARUL UNIVERSITY  
FACULTY OF ENGINEERING & TECHNOLOGY  
B.TECH MIDSEM EXAMINATION  
8<sup>th</sup> SEMESTER  
ACY-2021-22(EVEN SEM)

Subject Name (Code): Foundation Engineering (203104405)

Branch: Civil

Date: 08/08/2022

Time: 10.30am to 12.00pm

Total Marks: 40

Sr. No.		Marks
Q.1	(A)	05
1.	What is the value of $q_i$ , if soil is fully saturated? A. 1 B. 2 C. 0 D. $\sigma_{ey}$	
2.	Rankine's Theory is useful for _____ type of soil. A. Cohesionless B. Cohesive C. Both D. None	
3.	Deep foundation is also known as _____ A. Shallow Foundation B. Raft Foundation C. Pile Foundation D. All of Above	
4.	According to Terzaghi's Analysis, Zone II is in _____ state. A. Elastic Equilibrium B. Hard C. Loose D. Any	
5.	_____ is the design criteria of shallow foundation. A. $DIB = 0$ B. $LIB = 0$ C. $D < B$ D. $B < D$	
(B)		05
6.	Define: Ultimate Bearing Capacity	
7.	What do you mean by Shear Failure in Shallow Foundation?	
8.	Who is the father of Geotechnical Engineering?	
9.	List out types of Foundation.	
10.	Why sandy soil is known as cohesionless soil?	
Q.2	Attempt any four (Short Questions)	12
(1)	Explain Types of Shear Failures in Shallow Foundation.	
(2)	Kindly put your contrast on Factors affecting of shallow foundation selection criteria.	
(3)	Classify the types of Shallow Foundation according to its application.	
(4)	Determine the value of mobilized cohesion if the value of $c = 16$ kPa.	
(5)	Discuss about DCPT and SCPT.	
Q.3	Attempt any two	08
(1)	Distinguish between Shallow Foundation and Pile Foundation.	
(2)	Write a short note on Standard Penetration Test with neat Sketch.	
(3)	Categorize In situ Tests of Ultimate Bearing Capacity of Soil.	

- Q.4 (A) A strip footing width 3m is founded at a depth of 2m below the ground surface in a C -  $\phi$  soil having  $c = 30 \text{ kN/m}^2$  and  $\phi = 35^\circ$ . The water table is at the depth of 5m below GL. The moist weight of soil above the water is  $17.25 \text{ kN/m}^3$ . Determine the Ultimate bearing Capacity of the soil if the Factor of Safety is 3.  $N_c = 57.8$ ,  $N_q = 41.4$ ,  $N_\gamma = 42.4$  05
- (B) If the water table rises in above question to the ground level, Determine the net safe bearing pressure of the footing. All the other data remain same as above. Assume the saturated unit weight of the soil =  $18.5 \text{ kN/m}^3$ . 05
- OR
- (B) Simplify the Terzaghi's Bearing Capacity analysis theory and state the equation to find out ultimate bearing capacity of soil with neat sketch. 05