Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI (OLD) EXAMINATION – WINTER 2018

Subject Code:160606 **Date: 27/11/2018**

Subject Name: Geotechnical Engineering - II

Time: 02:30 PM TO 05:00 PM **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Explain Plate load test.	**07**
	(b)	Differentiate between General shear failure and Local shear failure with neat sketch.	**07**
Q.2	**(a)**	Write short note on Active and Passive earth pressure.	**07**
	(b)	A retaining wall 10 m high retains a cohesionless soil with an angle of internal friction 35°. The surface is level with the top of the wall. The unit weight of the top 3 m of the fill is 1.6 t/m^3 and that of the rest is 2 t/m^3. Find the magnitude and application of the resultant active thrust.	**07**
		OR	
	(b)	What are the graphical methods available for the determination of active earth pressure? Explain any one in detail	**07**
Q.3	**(a)**	Calculate the factor of safety with respect to cohesion, of a clay slope laid at 1 in 2 to a height of 10 m, if the angle of internal friction $\Phi = 10°$; c = 25 kN/m^2 and γ = 19 kN/m^3. Take Sn = 0.064. What will be the critical height of the slope in the soil?	**07**
	(b)	Discuss about stability analysis of Infinite slopes for c-Φ soils.	**07**
		OR	
Q.3	**(a)**	What are the basic modes of failure of earth slopes? What are the remedial measures to prevent failure of earth slopes?	**07**
	(b)	Discuss stability analysis of Finite slopes.	**07**
Q.4	**(a)**	Explain swedish circle method of stability analysis	**07**
	(b)	Write a short note on Newmark's influence chart.	**07**
		OR	
Q.4	**(a)**	Enlist various geophysical methods and explain any one in detail.	**07**
	(b)	Explain in detail about the factors affecting the selection of types of foundation	**07**
Q.5	**(a)**	In a 16 pile group, the pile diameter is 45 cm and center to center spacing of the square group is 1.5 m. If c = 50 kN/m^2, determine whether the failure would occur with the pile acting individually, or as a group? Neglect bearing at the tip of the pile. All piles are 10 m long. Take m = 0.7 for shear mobilization around each pile.	**07**
	(b)	Explain various stages involved in the construction of under reamed pile foundation	**07**
		OR	
Q.5	**(a)**	Explain different types of piles.	**07**
	(b)	How do you estimate the group capacity of piles in sand and clay?	**07**

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