CONTINUOUS INTERNAL EVALUATION– 1

Dept:CV	Sem / Div: 6	Sub:Applied Geotechnical Engg	S Code: 18CV62
Date: 24/05/21	Time:2.30-4.00pm	Max Marks: 50	Elective: N

Note: Answer any 2 full questions, choosing one full question from each part.

QN		Questions	Marks	RBT	COs
		PART A			
1	a	What is subsurface exploration? What are objectives of soil exploration.	7	L2	CO1
	b	Explain different types of samples and . Also brief on planning of soil exploration .	8	L3	CO1
	c	With the help of neat sketch, explain Seismic Refraction method of soil exploration. Using this method, determine the velocity of waves in soil layers and thickness of the top stratum, for the following details. Time (s) 0.1 0.2 0.3 0.4 0.45 0.50 0.55 Distance (m) 40 80 120 160 200 240 280 Geophones are placed at a spacing of 40m in a straight line and the time taken for the last wave to be received at each geophone is given.	10	L3	CO1
		OR			
2	a	What are the methods available for dewatering? Explain dewatering by well point system.	10	L2	CO1
	b	What is Stabilization of bore hole? explain any one method.	7	L3	CO1
	c	Explain the determination of ground water level by Hvorslev's method Using this method estimate the ground water table level for the following data : Depth up to which water is boiled out= 15m ; Water rise on first day = 0.80m, Water rise on second day=0.70m , Water rise on third day =0.60m.	8	L3	CO1
		PART B			
3	a	Derive the expressions for vertical stress and shear by using Boussinesq's theory. Also write the expression for Westergaard's theory	7	L2	CO2
	b	A soft, normally consolidated clay layer 20 m thick underlayed by sand of 4m think. The sand layer has density of $29kN/m^3$. The natural water content, saturated unit weights, specific gravity and liquid limit are 45%, 2.7 and 63% respectively. The vertical stress increment at the centre of the layer due the foundation load is 9 kN/m^2. The ground water level is at the surface of the clay. Determine the settlement of the foundation.	8	L3	CO2
	c	A circular area 5.5 m diameter barries a uniformly distributed load of $10kN/m^2$, determine the vertical stress at a depth of 1m, 4m and 8m. Plot the variation of vertical stress with depth.	10	L2	CO2
		OR			
4	a	Explain types of settlements with formulae.	7	L2	CO2
	b	Find the intensity of vertical pressure at a point 3 m directly below 25 kN point load acting on a horizontal ground surface. What will be the vertical pressure at same depth at a point 2 m horizontally away from the axis.	8	L3	CO2
	c	A footing of 3mx 1.2m rests on a saturated clay layer 4 deep. W_L = 30% , γ_{sat} .=18kN/m3 , w=28% and G = 2.68. Determine the settlement if the footing carries a load of 300kN.	10	L2	CO2

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