CONTINUOUS INTERNAL EVALUATION- 2

Dept:CV	Sem / Div: 6	Sub:Applied Geotechnical Engg	S Code: 18CV62
Date: 24/06/21	Time:3.00-4.30pm	Max Marks: 50	Elective: N
Note: Answer any 2 full questions, choosing one full question from each part.			

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QN		Questions	Marks	RBT	COs
		PART A			
1	a	Define with neat sketch At rest, Active and Fassive earth pressure.	7	L2	CO3
	b	A retaining wall, 8 m high with a smooth Vertical back, retains cohesionless soil. The top 3m of the backfill has Ǿ= 30° and ɣ =18 kN/m^3. Lower 4.5m of the backfill has unit weight of 24kN/m^3 and Ǿ= 30° .Obtain pressure distribution diagram and determine the total active earth pressure and its point of application.	10	L3	CO3
	c	Determine the active earth pressure using Rebhann's graphical method.	8	L2	CO3
		OR			
2	a	Derive equations for the earth pressure coefficients K_a and K_p by considering back fill with horizontal surface. Use Rankine's theory.	8	L2	CO3
	b	Compare Coulomb's Earth pressure theory over Rankin's Earth pressure.	7	L2	CO3
	c	A retaining wall of height 10m supports cohesionless soil with the following properties. G = 2.65 , e = 0.65 and Ǿ = 30^0, Water table lies at 3m depth. Surface of back fill is horizontal and carries surcharge of intensity 14kN/m^2. Draw lateral active earth pressure distribution. Determine total active earth pressure and its point of application.	10	L3	CO3
		PART B			
3	a	Explain the procedure for determination of factor of safety using method of slices for C- Ǿ soil	9	L2	CO3
	b	An embankment is inclined at an angle of 35^0 and its height is 15m. The angle of shearing resistance is 15° and cohesion intercept is 200kN/m^2. The unit weight of soil is 20 kN/m^3. If the Tailor stability number is 0.06, find Factor of safety with respect to cohesion.	6	L3	CO3
	c	A 10m height cutting has a slope of 45^0 to the horizontal. The soil properties are , G=2.65, c =30 kN/m^2 Ǿ= 20° and e= 0.68. Find Factor of safety with respect to cohesion against the failure for following cases. a)when the water table rises to full height b) when water level draw down suddenly. The stability no for different values of Ǿ are as follows Ǿ: 7 | 8 | 20 Sn: 0.116 | 0.106 | 0.076	10	L2	CO3
		OR			
4	a	Explain types of slope and the causes for slope failure. And also list the type of slope failure.	10	L2	CO3
	b	A cutting 8.5m deep is to be made on a cohesive soil whose slope is 2H:1V. The soil properties are , c =30 kN/m^2 Ǿ= 20° and ɣ =20 kN/m^3. A trial slip circle has a radius of 8.8m and its center is @ the same level as the top of the embankment. Use trial slip circle passing through the toe. Determine Factor of safety by method of slices.	10	L3	CO3
	c	Explain Swidish method to determine stability analysis of slopes.	5	L2	CO3

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Prepared by: HOD