CONTINUOUS INTERNAL EVALUATION-3

Dept:CV	Sem / Div: 5	Sub:Basic Geotechnical Engg	S Code: 18CV54
Date: 13/01/21	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 a Flownet? Briefly explain the characteristics and uses of flownet	7	L2	CO3
	b	An earthen dam 300m long is built on an impervious foundation with a horizontal filter under the d/s slope. The horizontal and vertical permeability's of the soil are 5 x 10^{-5} m/sec and 2 x 10^{-5} m/sec respectively. The full reservoir level is 20m above the downstream filter. The flow net consists of 4 channels and 16 equipotential drops. Estimate the seepage loss in litres per day per unit length of the dam.	8	L3	CO3
	c	. Compute the shear strength of soil along a horizontal plane at a depth of 5m in a depth of sand having the following particulars : angle of internal friction , $\acute{O}= 36^0$; Dry unit weight , γ_d =17 kN/m' ; specific gravity , G =2.7 . Assume the ground water table is 2.4m below the ground level. Also determine change in shear strength if the water table rises to ground level	10	L3	CO3,4
		OR			
2	a	Explain with neat sketch the method of locating the phreatic line in a homogenous earth dam with horizontal filter.	10	L2	CO3
	b	A soil stratum with permeability K=5 x 10^{-7}crn/s overlies an impervious stratum. The . impervious stratum lies at a depth of 18m below the ground surface. A sheet pile wall penetrates 8m into the permeable soil stratum. Water stands to a height of 9m on upstream side and 1.5m on downstream side above the surface of soil stratum. Sketch the flow net and determine the quantity of seepage	7	L3	CO3
	c	An unconfined compression test was conducted on an undisturbed sample of clay. The sample had a diameter of 37.5mm and was 80mm long. The load at failure measured by the proving ring,was 28N and the axial compression of the sample at failure was 13mm. Determine the unconfined compressive strength and the undrained shear strength of the clay.	8	L3	CO5,4
		PART B			
3	a	Explain Sensitivity and thixotrony of clay ..	5	L2	CO5
	b	Explain the types of shear test based on different drainage condition	5	L3	CO5
	c	A shear vane of 75mm diameter and 110mm length was used to measure the shear strength of a soft clay.. If.torque of 600 N-m was required to shear the soil, calculate the shear strength. The vane was then rotated rapidly to cause remoulding of the soil. The torque required in the remoulded state was 200N-m. Determine the	5	L2	CO5

Prepared by:

HOD