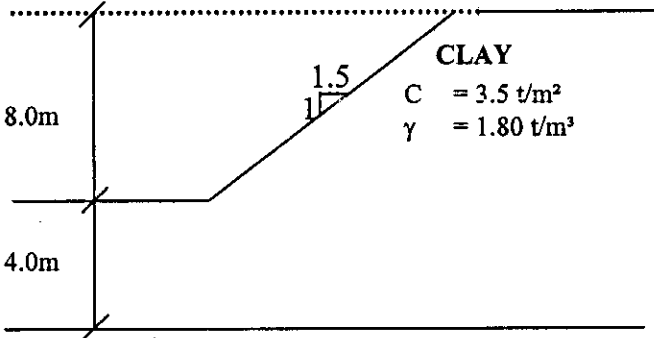## B. CONS. ENGG. 3RD YR 2nd SEM. EXAM. - 2017

Subject Soil Mechanics II　　　　**Time : Three hours**　　　　**Full Marks : 100**

Part I

Use Separate Answer scripts for each Group

Answer any two questions.

No of Questions	Question	Marks
Q1.	Fig. A gives the details of an embankment made of cohesive soils. Determine the factor of safety against base failure by mid point circle method with radius R = 14.00m **Fig.A**	25
Q2.a.	State whether the following statements are true or false. i)　Auger boring is not suitable for boring in sandy strata below water table. ii)　If bentonite is used for stabilization of bore holes, identification of soils becomes easier. iii)　In case of embankment made with cohesive soil, if height of embankment increases, slope angle decreases. iv)　For soft clayey strata, an undisturbed soil sample tube with relatively higher area ratio is to be used. v)　During a standard penetration test, if the no. of blows for successive 7.50cm penetration are 07, 09, 11, 13, 15 and 17, the N value will be 40.	05
Q2.b.	Describe auger boring method. Also state its advantages and disadvantages.	10
Q2.c.	What are the different informations to be furnished in a sub-soil investigation report?	10
Q3.a.	Write a short note on collection of undisturbed samples in clayey strata	10
Q3.b.	Define the following i)　Core Recovery ii)　RQD iii)　Area ratio in case of undisturbed samples. iv)　N-value in case of standard penetration test.	10
Q3.c.	State the different corrections that are generally applied on field N-value in case of cohesionless soil.	05

SOIL MECHANICS-II (Part-II)   Ref no: EX/CON/T/312/2017(old)

Answer any two questions
Assume relevant data if required.

Q-1. Write notes on the following

(a) Co efficient of earth pressure at rest   (b) Culmann's method of estimation of earth pressure.   (5+ 8)
© Determine the active force on retaining walls with earth quake force. (8)
(d) Describe with examples the application of retaining walls. (4)

Q-2. (a) Determine the force per unit width of the wall for Rankine's active and passive state . Show the earth pressure diagram. Find out the location of resultant force in both the states.   (25)

$c' = 0$ $\gamma = 16 \, kN/m^3$
$\phi' = 30°$

2.0 m

4.0 m
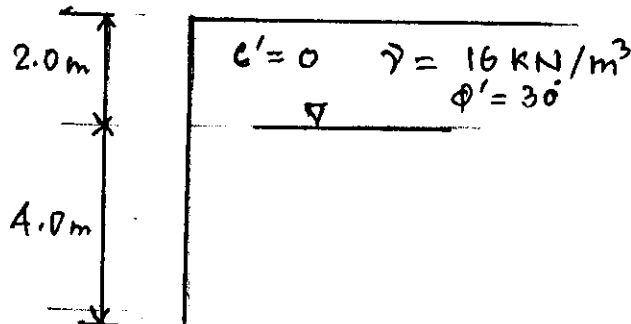
Q-3(a) Define and describe Flow lines, equipotential line, Flownet and field. (4* 3 = 12)

(b) Determine equivalent permeability in a non isotropic soil for estimation of seepage. (6)

© Explain quick sand condition with reference to stability of foundation. (7)