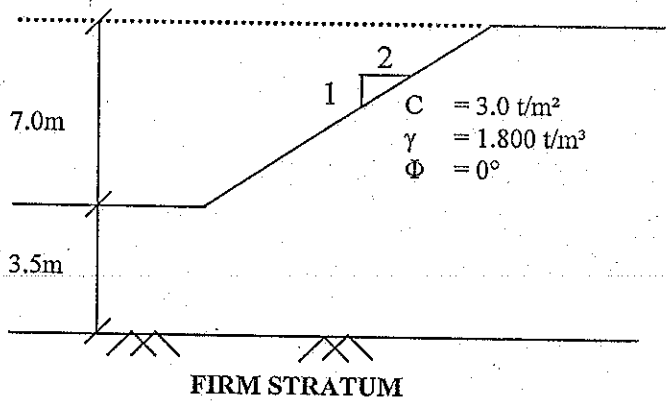
Ref. No.EX/CON/T/312/2018(S)

B.E. CONSTRUCTION ENGINEERING THIRD YEAR FIRST SEMESTER SUPPLEMENTARY EXAM 2018

SUBJECT: Soil Mechanics II

Time : Three hours **Full Marks : 100**

50 marks for each part

No of Questions	Part I / ~~Part II~~	Marks
	Answer any Two Questions	
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 R = 14.50m  Fig.A	25
Q2.a.	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
Q2.b.	State the different corrections that are generally applied on field N-value in case of cohesionless soil.	05
Q2.c.	Describe wash boring method. Also state its advantages and disadvantages	10
Q3.a.	Describe the methods of stabilization of bore holes by bentonite slurry. Also state its advantage and disadvantage.	10
Q3b.	State whether the following statements are 'True' or 'False'.	05
i)	Auger boring is suitable for sandy soil above water table.	
ii)	For soft clayey strata, an undisturbed soil sample tube with relatively higher area ratio is to be used.	

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iii)	No slope on clean sand can exist with a slope angle greater than angle of friction in loose state irrespective of its height.	
iv)	Higher RQD values imply better quality of rock.	
v)	The outside and inside diameter of an undisturbed soil sample tube are 102mm and 98mm. the area ratio will be 8.33%.	
Q3.c.	Write a short note on selection of number and depth of bore holes.	10

PART-II

B.E. Construction Engineering -3rd Year Ex/CON/T/312/2018(S)

First Semester

Answer any two questions.

Q-1 (a) A retaining wall has been shown in Fig 1 below. Find out the lateral earth pressure on wall under active, passive and at rest condition. Also draw with neat sketches the variation of earth pressure in respective cases. (25)

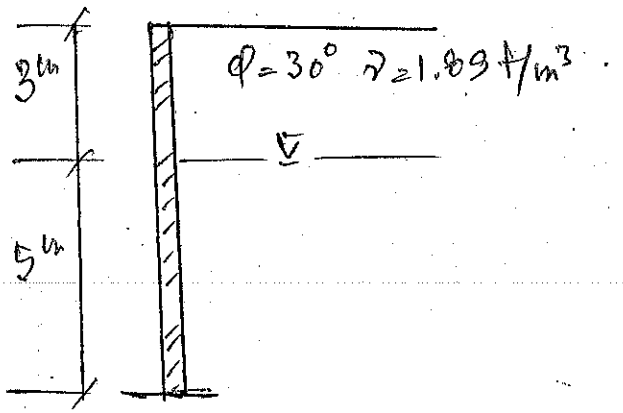

FIG-1

Q-2.(a) Explain the approach for determination of lateral pressure on retaining wall when line load and strip load surcharge is placed parallel to the crest (10)

(b) Explain requirements of drainage filter to protect failure against seepage . (9)

© Draw the force polygon considering the earthquake forces in retaining wall. (6)

Q-3(a) Explain the properties of flownet. (5*5 =25)

(b) Describe the significance of flownet construction.

(c) Explain sand boiling in soil.

(d) write notes on equivalent permeability.

(e) Explain with neat sketch the failure zone of soil behind retaining wall under active and passive mode of failure.