Final Examination: Semester II   Academic Year: 2003
Date: February 20th, 2004   Time: 09.00-12.00 a.m.
Subject: 235–402 Geotec for Mining Engin.   Room: R 300

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Instructions

1. There are two parts. Attempts questions (7) in 5 pages.

2. Answer all questions in this given papers and do rear papers allowed

3. All books and materials (Handheld non-programmable electronic calculators) are allowed

4. Write your name in each page and returned <u>all papers</u> to controllers

5. Total marks are 89 or 35 % of subject.

Part	QuestionNumber	Full Scores	Assigned Scores
1	4	14	
2	2.1	25	
	2.2	25	
	2.3	25	
Total scores		89	

"ทุจริตในการสอบ โทษขั้นต่ำปรับตกในรายวิชานั้น และพักการเรียน 1 ภาคการศึกษา สูงสุด ให้ออก"

Name ……………………………. Surname ………………………………… ID …………..…..

Bonne Chance et bon courage
Danupon Tonnayopas
Instructor
16 February 2004

Name ……………………………………………… Surname ………………………………………………… Student ID ……………………………………

Part 1. Answer the following questions:

1.1 In rockbolt applications, grouting serves purpose of (3 points)

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1.2 Water cement ratio of grouting (2 points)

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1.3 The ultimate bearing capacity of foundation depends on; (5 points)

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1.4 It is difficult to state the limiting condition for which a local or general shear failure
    takes place for a given soil.

a) However, which of the following parameters can be used as a rough guide to determine the
type of failure? (2 points)

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b) The bearing capacity factors for local shear failure are determined with respect to (2 points)

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Part 2. Calculation questions

2.1 What will be the gross and net safe bearing pressure of sand having $\phi = 36°$ and effective weight 1.8 t/m^3 under (a) a 1 m wide strip-footing, (b) a 1 m square footing? Assume the footings are placed at a depth of 1 m below ground surface and that the water table is at grat depth. Also assume a factor of safety of 3.0. Use Terzaghi's theory. Given are $\phi = 36°$, $N_q = 47$ and $N_\gamma = 43$ (25 points)

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2.2   A plate-load test was performed on a uniform deposit of sand and the following observations were recorded

Load (t/m^2)	5	10	20	30	40	50	60
Settlement (mm)	4.5	8.5	16	31.3	50	74	104

The size of the plate was 30 cm × 30 cm. Plot the load-settlement curve and determine the load a footing 15 cm ×15 cm can safety carry if the settlement is not to exceed 50 mm.   (25 points)

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2.3   a) Determination the allowable bearing capacity for a footing founded at 1.5 m below ground level. The soil is silty sand and has the following properties: c = 0.5 t/m^2, = 28°, γ = 1.8 t/m^3. Use a factor of safety of 3.0 and assume that the water table may rise to the ground level. (b) For the above soil the corrected SPT *N* value, averaged over the zone of influence, is found to be 15. What is the allowable bearing pressure if the permissible settlement is 50 mm?   (25 points)

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