



Prince of Songkla University
Faculty of Engineering

Final Examination: Semester II
Date: February 21st, 2005
Subject: 235-402 Geotec.

Academic Year: 2004
Time: 01.30-04.30 p.m.
Room: R 300

Instructions

1. Attempts question (6) in 8 pages.
2. Answer all questions in this given papers and do rear papers allowed
3. All books and materials are allowed
4. Write your name in each page and returned all papers to controllers
5. Total marks are 130 or 30 % of subject.

Part	Full Scores	Assigned Scores
1	10	
2	10	
3	25	
4	25	
5	30	
6	30	
Total scores	130	

“ทูลงการในการสอบ โทษขันต่ำปรับตกรในรายวิชานั้น และพักรการเรียน 1 ภาคการศึกษ สูงสุด ให้ออก”

Name	Surname	ID
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Bonne Chance et bon courage
Danupon Tonnayopas
Instructor
16 February 2005

4. The data below is from a resistivity survey at a golf course in Hat Yai. The survey consists of Wenner configuration.
- a) Draw a cross-sectional profile with this data (10 points)
 - b) Based on your interpretation of the data, how depth to drill a water well.. (15 points)

A spacing, m	App. resistivity, ohm-m
10	1476
15	1443
20	1201
25	1043
30	964
35	909
40	866
45	866
50	840
55	925
60	879
65	810
70	761
75	725
80	646
85	577
90	574
95	541
100	485

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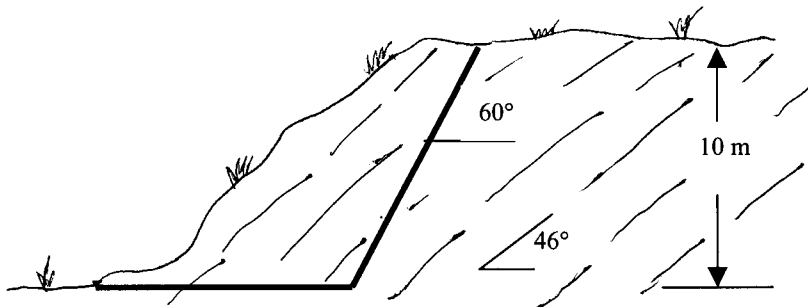
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- 5. Assume a proposed 10 m deep limestone quarry is proposed in hard sedimentary rocks where the bedding planes strike parallel to the burden and dip at 46° toward the burden. Laboratory tests on core containing bedding plane discontinuities show that the friction angle (ϕ) is 41° and cohesion is $34,500 \text{ N/m}^2$. The density of the rock is 2800 kg/m^3 .



- a. Assume no tension crack exists, and the slide is all above the water table. Determine the factor of safety for a 60° road cut. (10 points)
- b. Suppose the contractor uses explosives (acceleration of $0.1g$) to excavate the quarry, and in so doing destroys any cohesion in the bedding planes. Determine the factor of safety. (10 points)
- c. An alternative road cut design is to increase the resisting force by using rock bolt. Determine the rock bolts required per m of road cut for a F.S. = 1.5 (Assume no cohesion). (10 points)

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