PRINCE OF SONGKLA UNIVERSITY
FACULTY OF ENGINEERING

Final Examination: Semester 1　　　　　Academic Year: 2007
Date: ~~10/9/2007~~　๑ / ๑๐ /๒๐๐๗　　Time: 13.30-16.30
Subject: 225-345 Engineering Economy　　Room: A401, A403

Instructions

- There are 6 questions and 1 extra question (8 pages).
- Total score is 105.
- Answer all questions.
- Dictionary, calculators, computers, books and lecture-notes are allowed.

ด้วยเกียรติและศักดิ์ศรี ข้าพเจ้าจะซื่อสัตย์ในการสอบ

ลงชื่อ………………………………………………ตอน…………

ทุจริตในการสอบโทษขั้นต่ำคือปรับตกในรายวิชาที่ทุจริต และพัก
การเรียน 1 ภาคการศึกษา

Good luck
Sakesun Suthummanon

Question	Full Score	Score
1	10	
2	20	
3	20	
4	10	
5	20	
6	20	
Extra	5	
Total	105	

1. An investor paid $10,000 to a consulting firm to analyze what he might do with a small parcel of land on the edge of town that can be bought for $30,000. In their report, the consultants suggested four alternatives:

Alternatives	Total investment	annual benefit	value at end of 20 yr
Do nothing	$0	$0	$0
Market	50,000	5,100	30,000
Gas station	95,000	10,500	30,000
Small motel	250,000	36,000	150,000

Assuming 10% is the minimum attractive rate of return, what should the investor do?

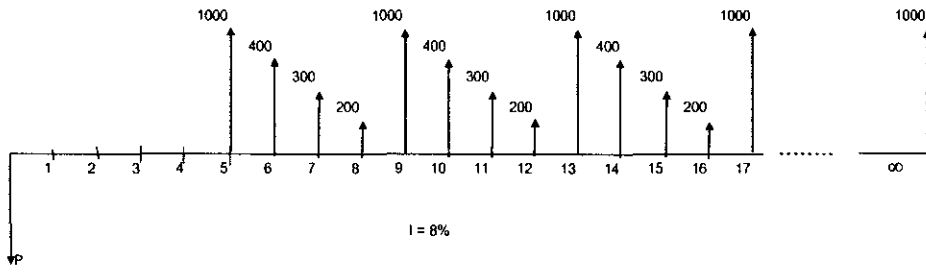2. Two pieces of construction equipment are being analyzed:

Year	Alternative A	Alternative B
0	-$2000	-$1500
1	1000	700
2	850	300
3	700	300
4	550	300
5	400	300
6	400	400
7	400	500
8	400	600
9	400	700

Based on an 8% interest rate, which alternative should be selected?
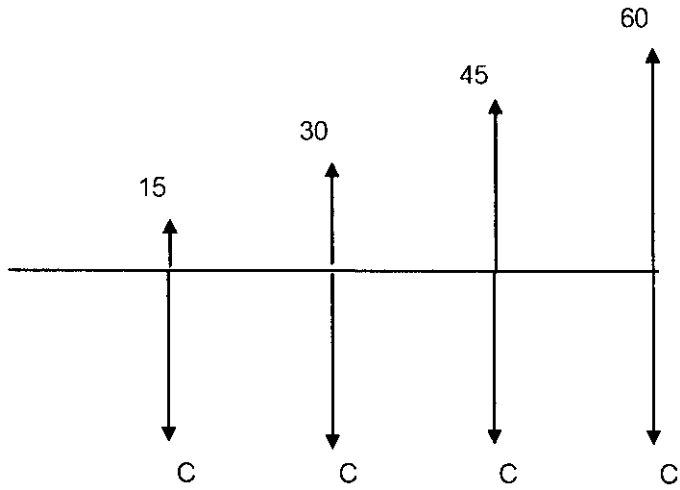
3.Find **P** for the cash flow diagram below

I = 8%

4

4.Compute the value of **C** for the following diagram, based on 10% interest rate.

5. Two machines are being considered for purchase. If the MARR is 10%, which machine should be bought?

	Machine A	Machine B
Initial cost	$300	$500
Annual cost	100	110
Annual revenue	195	230
End-of-useful-life salvage value	50	120
Useful life, in years	6	12

6. A new minor league baseball team is coming to town and the owners have decided to build a new stadium, either small or large. The success of the team with regard to ticket sales will be either favorable or unfavorable, with probabilities of 0.75 and 0.25, respectively. If demand for tickets is high, the large stadium would provide a payoff of approximately $20 million. If ticket sales are weak, the loss on the large stadium would be $5 million. If a small stadium is constructed, and ticket sales are weak, the payoff is $500,000 after deducting the cost of construction. If ticket sales are strong, the team can choose to build an upper deck, or to maintain the existing facility. Expanding the stadium in this scenario has a payoff of $10 million, whereas maintaining the same number of seats has a payoff of only $3 million.

a. Draw a decision tree for this problem.
b. What should management do to achieve the highest expected payoff?

Name………………………… …………………………Code……………

Extra:
1: Construct a question and answer it on your own.

2: What is the "Engineering Economy"? Explain its significance. Give an example of its use.

8