Name ID.number Section 0....

Prince of Songkla University
Faculty of Engineering

Mid-term : semester 1 Academic Year : 2008
Date : July 30, 2008 Time : 13.30 – 16.30
Subject : 225-346 Engineering Economy Room : R300, R201

Instruction

1. Attempt all questions.
2. Write answers in this examination paper
3. All materials are allowed into the examination room.
4. Total pages are 8 pages.
5. The points are as follows :

Question NO	1	2	3	4	5	total
Full points	16	13	10	9	7	55

ทุจริตในการสอบ โทษขั้นต่ำคือปรับตกในรายวิชาที่ทุจริตและพักการเรียน 1 ภาคการศึกษา

Boonrueing Manasurakarn
Instructor

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1. If an asset has a first cost of 100,000 Baht. with a 10,000 Baht. salvage value after 6 years, R = 0.4.
   Calculate the answers and fill them into the below blankets : (16 points)

   1.1 The straight line depreciation of year 4 is
   _____ Baht.

   1.2 The Sum of the years digit depreciation of year 3 is
   _____ Baht.

   1.3 The declining balance depreciation of year 5 is
   _____ Baht.

   1.4 The book value of year 5 with the sum of the years digit depreciation is
   _____ Baht.

   1.5 The book value of year 2 with the declining balance depreciation is
   _____ Baht.

   1.6 The declining balance depreciation switchover to straight line depreciation is

Year,k	Beginning of year book value	Declining balance depreciation	Straight line depreciation	Depreciation selected
0				
1				
2				
3				
4				
5				
6				

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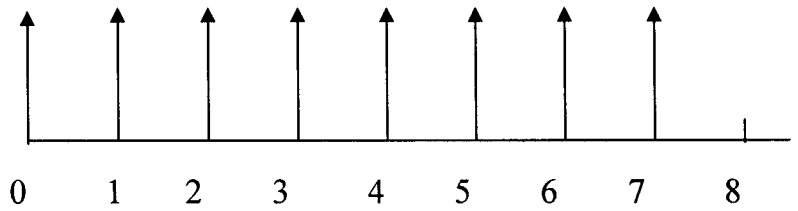
2. Calculate the below questions and fill only answers into the below blankets:

2.1 Refer to the below cash flow diagram, write down the conclusive formula and the answer. (3 points)

A = ฿ 200,000



i = 8%

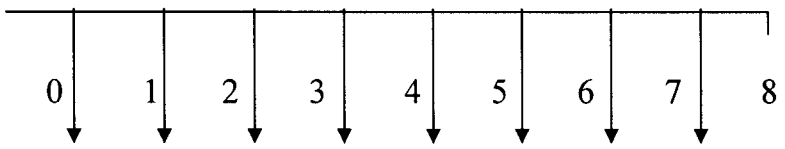
The conclusive formula is

P_0 =

The value of P_0 = Baht.

2.2 Refer to the below cash flow diagram, write down the conclusive formula and the answer. (4 points)

i = 8%



A = ฿ 100,000

The conclusive formula is

F_8 =

The value of F_8 = Baht.

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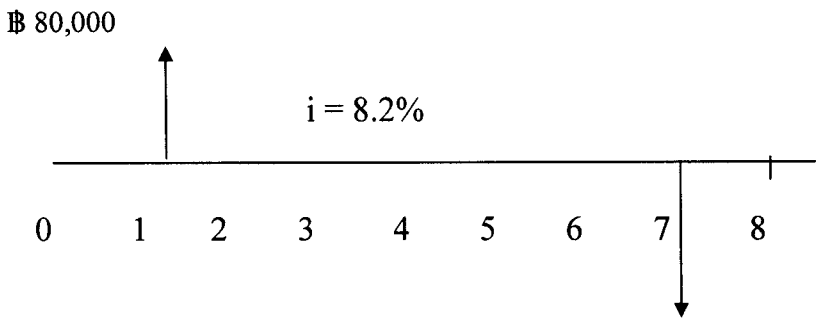
2.3 Refer to the below cash flow diagram, write down the conclusive formula and the answer. (2 points)

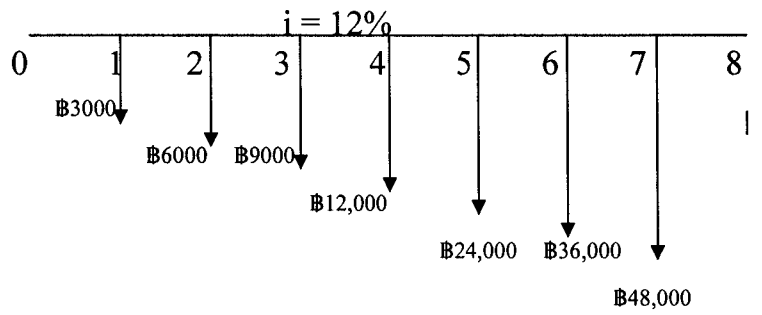


The conclusive formula is

F_7 =

The value of $F7_7$ = Baht.

2.4 Refer to the below cash flow diagram, calculate by gradient method, write down the conclusive formula and the answer. (4 points)



The conclusive formula is

F_7 =

The value of $F7_7$ = Baht.

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3. Two alternative electric motors provide 125-hp. Output. The value of A motor is ฿ 50,000. The efficiency is 78% . Its useful life is 5 years and the maintenance expenses are ฿ 1,000 per year. The value of B motor is ฿ 70,000. The efficiency is 85% . Its useful life is 5 years and the maintenance expenses are ฿ 800 per year. Suppose the MAAR is 13% per year. There is no salvage value for both motor. The variable cost of the electricity is ฿ 2.50 per kilo Watt-hour. How do you decide to use the motors? (10 points)

Note : 1 hp = 0.746 kw

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4. A small company purchase a machine now for 2,438,000 Baht will lose 127,200 Baht each year the first four years. And additional 848,000 Baht invested in the company during the fourth year will result in a profit of 583,000 Baht each year from the fifth year through the twelfth year. At the end of 12 years, the company can be sold for 349,800 Baht. Determine the IRR. Suppose MARR = 14%, how do you decide to the machine? (7 points)

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5. A machine cost is 2,500,000 Baht. and have salvage value of 250,000 Baht. at the end of its expected life of five years. Increased productivity will amount to 800,000 per year after extra operating costs have been subtracted from the value of the additional production. Evaluate the ERR of the proposed machine. How do you decide to the machines, if MARR = 10% ? (7 points)