

ENMG 400
N. Noueihed

Faculty of Engineering & Architecture
AUB

Senior Lecturer N.Noueihed
ENMG 400 Midterm(section 3)
(open book , 1 1/2 hours)
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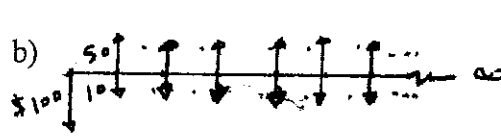
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Name:-----

ID# :-----

Part 1

Please do this part on the answer booklet.



Find X .

Find the rate of return.

(20%) 2. Consider the four mutually exclusive alternative investment projects .
assume that the MARR = 12% .

Project's cash flow				
Year	A	B	C	D
0	-\$4800	-\$4000	-\$2500	-\$3000
1	2610	2500	1500	1200
2	1000	1300	2000	1400
3	1000	800	600	700
4	1200	900	400	500

Use the net present worth analysis to select the most attractive investment among the four.

(20%) 3. Given the following sets of investment projects.

Project's cash flow				
Year	A	B	C	D
0	-\$2000	-\$4000	-\$3000	-\$9000
1	400	500	-300	1500
2	500	700	1500	3000
3	700	1000	2000	4000
4	800	700	1200	2500
5	900	600	1000	2000

Use an MARR of 10% and Annual cash flow analysis to select the most attractive investment.

(25%) 4. Information about three mutually exclusive investment projects is presented by the table:

	A	B	C
First cost	\$20,000	\$18,000	\$16,000
Annual benefit	2400	2200	2000
Useful life	10 years	10 years	10 years
Salvage value	2500	2300	2000

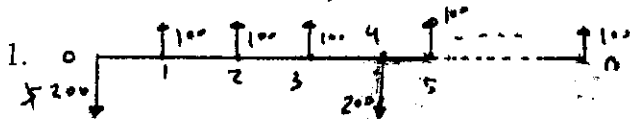
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Assume that the MARR = 10 %.

- Compute the IRR for each investment.
- Use incremental rate of return analysis to select the most attractive project among the three.

Part 2

Please circle the correct answer or supply your answer whenever appropriate. (do this part on the question sheet)



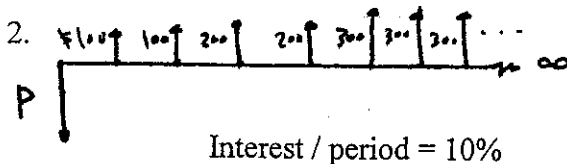
If the rate of return is "I", find "n" in terms of "I".

Answer:-----

$$n = -$$

$$\ln \left[1 - \frac{2 + \frac{3}{(1+I)^4}}{(1+I)^4} \right]$$

$$\ln (1+I)$$



Find P.

\$2509.41

3. Consider the investments

year	A	B	Do nothing
0	-\$2000	-\$2000	0
1	1000	1200	0
2	1000	800	0
3	352	330	0

Based on the rate of return analysis and an MARR = 15% , we should

a) select A

b) select B

c) Do nothing

4. An investment costs initially \$1,000,000 and needs an annual operational cost of \$10,000. The projected annual benefits are \$120,000. If the MARR = 10% , and the project is supposed to last indefinitely, what is the net present worth of the project?

a) -\$10,000

b) + \$ 10,000

c) -\$100,000

d) +\$100,000

e) none

5. Consider the investment .

year	investment
0	-\$100
1	600
2	-\$1100
3	600

The equation : $NPW(i) = 0$, has

- a) one positive root **b) two positive roots** c) 3 positive roots e) none

GOOD LUCK\$\$\$\$

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