IE 342 18-19 Spring Study Set 4

Please do not submit your answers as they will not be graded!!

(Solutions will not be provided)

1)

	Net Cash Flow			
n	Project A	Project B	Project C	Project D
0	-$18,000	-$30,000	$34,578	-$56,500
1	$30,000	$32,000	-$18,000	$2,500
2	$20,000	$32,000	-$18,000	$6,459
3	$10,000	-$22,000	-$18,000	-$78,345

a) Find simple investments? Project A

b) Compute i* for each investment. 126.54%, 45.34%, 26.09%, -213.43%

c) Which project has no rate of return? Project D

2)

	Net Cash Flow		
n	Project A	Project B	Project C
0	-$1,600	-$5,000	-$1,000
1	$10,000	$10,000	$4,000
2	$10,000	$30,000	-$4,000
3		-$40,000	

Assume that MARR=12% in the following questions:

a) Which project(s) is (are) a mixed investment? Project 2 and Project 3

b) Compute the IRR for each project. 612.69%, -2.04%, -57.14%

c) Determine the acceptability of each project? Project A

3) Consider the following two mutually exclusive investment projects:

	Net Cash Flow	
n	Project A	Project B
0	-$300	-$800
1	$0	$1,150
2	$690	$40
i*	51.66%	46.31%

Assume that MARR=15% According to the IRR criterion, which project would be selected?

Project B

4) Consider the following two mutually exclusive investment projects:

	Net Cash Flow	
n	Project A	Project B
0	-$15,000	-$20,000
1	$7,500	$8,000
2	$7,500	$15,000
3	$7,500	$5,000
IRR	23.5%	20%

a) Find the IRR on incremental investment 7.36%

b) If the firm's MARR is 10%, which alternative is the better choice? Project A

5) A university hospital is reviewing ways of cutting the cost of stocking medical supplies. Two new stockless systems are being considered, to lower the hospital's holding and handling costs. The hospital's industrial engineer has compiled the relevant financial data for each system as follows (dollar values are in millions)

	Current Price	Just-in-Time System	Stockless Supply System
Start-up cost	$0	$2.5	$5
Annual Stock holding cost	$3	$1.4	$0.2
Annual Operating cost	$2	$1.5	$1.2
System Life	8 years	8 years	8 years

The system life of eight years represents the period that the contract with the medical suppliers is in force. If the hospital's MARR is 10%, which system is more economical? Stockless Supply System

6) Consider the following two mutually exclusive investment projects:

	Net Cash Flow	
n	Project A	Project B
0	-$10,000	-$15,000
1	$5,000	$20,000
2	$5,000	
3	$5,000	

(indefinite service period)

Determine the range of MARRs which will indicate that project A should be selected.

Note: do nothing is an option (be careful about feasibility)

For project A: MARR<=23.38 and MARR>=44.22, and infeasible.

7) The DB method is to be used for an asset with a cost of $80,000, an estimated salvage value of $8000, and an estimated useful life of six years.

a) What is the depreciation for the first three fiscal years, assuming that the asset was placed in service at the beginning of the first year? 20000, 15000, 11250

b) Calculate the depreciations and book values for the six years.

(Hint: what is optimal time to switch to SL method?) : 4th year

8) Cost of asset: $10000

Useful life: 5 years

Salvage Value: $2000

Depreciation Method: DDB

a) What is the value of α? 0.4

b) What is the amount of depreciation for the second year of use of the asset? $2400

c) What is the book value of the asset at the end of the fourth year? $2000