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EP60008

Date: 19.03.2023
Max. Marks: 20

EoE Assignment: Capital Budgeting

Q1. You are evaluating an investment project, Project ZZ, with the following cash flows:
Calculate the following:

Period	Cash Flow
0	-$100,000
1	35,027
2	35,027
3	35,027
4	35,027

a. Payback period
b. Discounted payback period, assuming a 10% cost of capital
c. Discounted payback period, assuming a 16% cost of capital
d. Net present value, assuming a 10% cost of capital
e. Net present value, assuming a 16% cost of capital
f. Profitability index, assuming a 10% cost of capital
g. Profitability index, assuming a 16% cost of capital
h. Internal rate of return
i. Modified internal rate of return, assuming reinvestment at 0%
j. Modified internal rate of return, assuming reinvestment at 10%

Q2. Suppose you are evaluating two mutually exclusive projects, Thing 1 and Thing 2, with the following cash flows:

	End of Year Cash Flows	
Year	Thing 1	Thing 2
2000	-$10,000	-$10,000
2001	3,293	0
2002	3,293	0
2003	3,293	0
2004	3,293	14,641

a. If the cost of capital on both projects is 5%, which project, if any, would you choose? Why?
b. If the cost of capital on both projects is 8%, which project, if any, would you choose? Why?
c. If the cost of capital on both projects is 11%, which project, if any, would you choose? Why?
d. If the cost of capital on both projects is 14%, which project, if any, would you choose? Why?
e. At what discount rate would you be indifferent between choosing Thing 1 and Thing 2?
f. On the same graph, draw the investment profiles of Thing 1 and Thing 2. Indicate the following items:

- crossover discount rate
- NPV of Thing 1 if the cost of capital is 5% and NPV of Thing 2 if cost of capital is 5%
- IRR of Thing 1 and IRR of Thing 2

Q3. The Mighty Mouse Computer Company is considering whether or not to install a packaging robot. The robot costs $500,000, including shipping and installation. The robot can be depreciated using MACRS as a five-year asset. (MACRS depreciation rates for a five year asset: 20%, 32%, 19.2%, 11.52%, 11.52%, and 5.76%). The robot is expected to last for five years, at which time management expects

to sell it for parts for $100,000. The robot is expected to replace five employees in the shipping department, saving the company $150,000 each year. Mighty's tax rate is 30%.

a. What are the net cash flows for each year of the robot's five-year life?
b. What is the net present value of the robot investment if the cost of capital is 10%?
c. What is the net present value of the robot investment if the cost of capital is 5%?
d. What is the profitability index of this investment if the cost of capital is 5%?
e. What is the payback period of the robot investment?
f. What is the discounted payback period of the robot investment if the cost of capital is 5%?
g. What is the internal rate of return of the robot investment?
h. What is the modified internal rate of return (MIRR) of the robot investment if the cash flows are reinvested at 5%?
i. If the cost of capital is 5%, should Mighty Mouse invest in this robot?

Q4. Solve the problem given in "Cash Flow Analysis" pdf in MS Teams Folder named as **INTEGRATIVE EXAMPLE 1: THE EXPANSION OF THE WILLIAMS 5 & 10**