

IE 342 2019-2020 Fall

Study Set 5

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

(Solutions will not be provided)

- 1) Consider an asset that costs \$132,000 with a useful life of 5 years and a salvage value of \$20,000. Compute the annual depreciation allowances and the resulting book values, using
- (a) The straight-line depreciation method.
 - (b) The double-declining-balance method.

Answer:

a)

Annual Depreciation:	\$ 22,400.00	Cost Basis	\$ 132,000.00
Year	Annual Depreciation	Cumulative Depreciation	Book Value
0			\$ 132,000.00
1	\$ 22,400.00	\$ 22,400.00	\$ 109,600.00
2	\$ 22,400.00	\$ 44,800.00	\$ 87,200.00
3	\$ 22,400.00	\$ 67,200.00	\$ 64,800.00
4	\$ 22,400.00	\$ 89,600.00	\$ 42,400.00
5	\$ 22,400.00	\$ 112,000.00	\$ 20,000.00

b)

alpha:	40%		
Year	Annual Depreciation(DDB)	Cumulative Depreciation	Book Value
0			\$ 132,000.00
1	\$ 52,800.00	\$ 52,800.00	\$ 79,200.00
2	\$ 31,680.00	\$ 84,480.00	\$ 47,520.00
3	\$ 19,008.00	\$ 103,488.00	\$ 28,512.00
4	\$ 8,512.00	\$ 112,000.00	\$ 20,000.00
5	\$ -	\$ 112,000.00	\$ 20,000.00

- 2) The double-declining-balance method is to be used for an asset with a cost of \$68,000, an estimated salvage value of \$12,000, 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 year?
 - b) If switching to the straight-line method is allowed, when is the optimal time to switch?

Answer: D1= \$22,667 D2= \$15,111 D3=\$10,074 ; b) 5

3) On April 1, Leo Smith paid \$250,000 for a residential rental property. This purchase price represents \$200,000 for the building and \$50,000 for the land. Five years later, on November 1, he sold the property for \$300,000. Compute the MACRS depreciation for each of the five calendar years during which he had the property.

Answer: \$5,152 \$7,273 \$7,273 \$7,273 \$6,364

4) A small electronics repair firm, expects an annual income of \$70,000 from its regular business. The company is considering expanding its repair business to include personal computers. The expansion would bring in an additional annual income of \$30,000, but will require an additional expense of \$10,000 each year over the next three years. Using applicable current tax rates, answer the following:

a) What is the marginal tax rate in tax year 1?

b) What is the average tax rate in tax year 1?

Answer: a) 34% b) 20.94%

5) In year 0, an electrical appliance company purchased an industrial robot costing \$300,000. The robot, to be used for welding operations and classified as seven-year recovery property, has been depreciated by the MACRS method. If the robot is to be sold after five years, compute the amounts of gains (losses) for the following three salvage values (assume that both capital gains and ordinary incomes are taxed at 34%): a) \$10,000. b) \$125,460. c) \$200,000.

Answer:

a) Salvage Value = \$10,000

Salvage Value < Book Value < Cost Basis

Net Proceeds from Sale = \$33,910.5

b) Salvage Value = \$125,460

Book Value < Salvage Value < Cost Basis

Net Proceeds from Sale = \$110,114.1

c) Salvage Value = \$200,000

Book Value < Salvage Value < Cost Basis

Net Proceeds from Sale = \$200,000 - \$40,689.5 = \$159,310.5

