**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.

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?

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.

4) A coal mine expected to contain 6.5 million tons of coal was purchased at a cost of \$30 million. One million tons of coal are produced this year. The gross income for this coal is \$600,000, and operating costs (excluding depletion expenses) are \$450,000. If you know that coal has a 10% depletion allowance, what will be the depletion allowance for

   a) Cost depletion?

   b) Percentage depletion?

5) A consumer electronics company was formed to develop cellphones that run on or are recharged by fuel cells. The company purchased a warehouse and converted it into a manufacturing plant for \$6,000,000. It completed installation of assembly equipment worth \$1,500,000 on December 31. The plant began operation on January 1. The company had a gross income of \$8,500,000 for the calendar year. Manufacturing costs and all operating expenses, excluding the capital expenditures, were \$2,280,000. The depreciation expenses for capital expenditures amounted to \$456,000.

   a) Compute the taxable income of this company.

   b) How much will the company pay in federal income taxes for the year?

6) In year 0, an automotive company purchased an industrial robot costing $300,000. The robot is classified as seven year recovery property, and has been depreciated by the MACRS method. If the robot is sold after 5 years, compute the amount of gains(/losses) for the following three salvage values:

a) $20,000

b) $140,000

c) $400,000

(Assume both capital gains are taxed at 40% and ordinary gains are taxed at 34%)