**EIN 5359 Industrial Financial Decisions**

Spring 2017 Exam 1

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1. XYZ Company purchased a warehouse in July 2015 for a total of $25 million. It is estimated that the building and land worth about the same.
2. **How much depreciation XYZ Company can declare for the warehouse in 2015?**

The depreciation that XYZ Company can declare for the warehouse in 2015 is 0. To qualify for depreciation, a property must have a life longer than a year.

1. **If XYZ Company sold the warehouse in December 2016 for $24.5 million, how much capital gain/loss could they declare?**

The warehouse is in the 39 year MACRS GDS Property class and was purchased in July 2015.

So the depreciation in 2015 is:

$25 million\*1.177%=**$294,250**

$25,000,000\*2.564%=**$641,000**

Now the book value is

$25,000,000-$294,250-$641,000=24,064,750

They sold it for $24.5 million so they can declare capital gain for **$435,250**

**.**

1. **ABC Company was founded in 20X1 and had the following taxable income through 20X6:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 20X1 | 20X2 | 20X3 | 20X4 | 20X5 | 20X6 |
| $250,000 | $90,000 | $800,000 | -$1,800,000 | $1,200,000 | $600,000 |

**Compute the corporate income tax or tax refund in each year, assuming the graduated tax rates listed in Chapter 2.**

|  |  |
| --- | --- |
| Year | Income tax or tax refund |
| 20X1 | $22,250+39%\*$150,000=$80,750 |
| 20X2 | $13,750+34%\*15,000=$18,850 |
| 20X3 | $113,900+34%\*465,000=$272,000 |
| 20X4 | -$(18,850+272,000)=-$290,850(refund) |
| 20X5 | $(90,000+800,000+1,200,000-1,800,000)=$290,000  $22,250+39%\*$190,000=$96,350 |
| 20X6 | $113,900+34%\*$265,000=$204,000 |

1. A person was considering buying a house priced at $210,000. A mortgage company claimed the interest rate for the 20-year loan is 4.00%. The company also estimated that the points and appraisal, credit report, processing, document preparation, administration, underwriting, flood certificate, tax service and other fees would be $12,000 in total.
2. **What would be the monthly payment, if the person decided to borrow 80% of the cost of the house and 100% of the processing fees?**

P = 80%\*$210,000+$12,000=$180,000

i=4.00%/12=0.33% n=20\*12=240

R= P/ (PVFIA0.33%,240)=$180,000/165.5973=1,086.97

Monthly payment: $1,086.97

1. **What is the APR of the loan?**

The APR of the loan is 4%

1. **If the person accepts the terms of the loan on Feb.28, 2010, the first monthly payment is due on March 31. How much mortgage would have been paid off after the payment on January 31, 2017?**

Total mortgage is 83 months \* $1,086.97=$90,218.51

1. **How much interest charge could this person claim for deduction in the 2016 Tax Return, i.e. the total interest occur during year 2016?**

The total interest during 2016 $5517.37

1. **a) International Business Machine stock currently 2017 pay $1.40 per share quarterly dividend ($0.50 in 2008). Assuming constant growth, what is the growth rate on the IBM stock dividend?**

$0.5\*(1+g)9 = $1.40 g=0.1212

The growth rate is 12.12%.

**b) Find the Beta for IBM stock, and the current interest rate on 6-month T-bill..**

The beta for IBM is 0.97(Google Finance), the current interest rate on 6-month T-bill is 0.68%. (2/28/2017)

1. **For the past 5 years, the Dow Jones Industrial Average went from 12,949.87 to 20,624.05(2/17/17). Assume it represents the expected return for the market portfolio, calculated the required return for IBM stock based on CAPM.**

R= Rf+ β(Rm-Rf) β=0.97 Rm=(20624.05/12949.87)1/5-1=9.75%

Rf = 6-month T-bill =0.68%

R=0.68%+0.97(9.75%-0.68%) =9.4779%

1. **Based the closing price of IBM stock on 2/28/17, what is the yield of IBM stock? Is this stock overpriced or underpriced?**

Yield=3.09 P=179.82 D=1.40 g=12.12%

ke =D1/P0+g=12.90% K>3.09

It is overpriced.