Directions:
This take-home problem set (THPS) is due at the beginning of the regular class in week 6, and has to be turned in physically. Please do not send your answers via e-mail since any electronically turned in THPS will not be graded.

Although you may use your book, notes, etc., all work on this THPS is to be yours alone - any discussion of either the questions on the assignment or your answers with anyone other than the instructor will be considered as cheating and, thus, as a violation of the GSU honor code. You have to confirm your adherence to those rules by signing the attached academic honesty statement.

For the multiple choice questions (Part I), record the letter of the correct multiple choice answer directly on the answer sheet on the last page. You do not need to show any intermediate steps since no partial credit will be awarded on multiple choice questions. For the problems with no answer choices (Part II), record your final numeric answer including relevant calculations and intermediate steps on separate sheets of paper. Partial credit may be assigned at the instructor’s discretion for these problems.

The grade on any assignment turned in after the beginning of class on the relevant date listed above will be reduced at a daily compounded rate of 10% per day (begin mode).

Following:
- Part I: Multiple choice questions (pp. 2-5)
- Part II: Problems and Calculations (pp. 6-7)
- Statement of academic honesty (to be signed and turned in together with the solutions)
- Cover sheet with answers to Part I (p. 9) to be turned in together with the solutions to Part II
Part I: Multiple Choice Questions (each question is worth one point)

1. Determine the increase or decrease in cash for Romano Company for last year given the following information. (Assume no other changes occurred during the past year)

   Decrease in marketable securities = $30
   Increase in accounts receivables = $50
   Increase in notes payable = $35
   Decrease in accounts payable = $20
   Increase in accrued wages and taxes = $15
   Increase in inventories = $15
   Increase in retained earnings = $25

   a. -$50
   b. +$40
   c. -$30
   d. +$20
   e. +$30

2. William’s Wigs Inc. had the following balance sheet last year:

   Cash                  $   800   Accounts payable $   350
   Accounts receivable  450   Accrued wages          150
   Inventory                        950   Notes payable       2,000
   Net fixed assets       34,000   Long-term debt       26,500
                            __________________________
   Common stock          3,200   Retained earnings    4,000
                            Total liabilities
   Total assets           $36,200 and equity $36,200

   William has just invented a non-slip wig for men which he expects will cause sales to double from $10,000 to $20,000, increasing net income to $2,200. He feels that he can handle the increase without adding any fixed assets. Furthermore, he expects current assets and spontaneous liabilities to increase in proportion to sales. (1) Will William need any outside capital if he pays $500 in dividends? (2) If so, how much?

   a. No; zero
   b. Yes; $7,700
   c. Yes; $1,700
   d. Yes; $700
   e. No; there will be a $700 surplus.
3. Choi & Sons recently reported sales of $100 million, and net income equal to $5 million. The company has $70 million in total assets. Over the next year, the company is forecasting a 20 percent increase in sales. Since the company is at full capacity, its assets must increase in proportion to sales. The company also estimates that if sales increase 20 percent, spontaneous liabilities will increase by $4.4 million. If the company's sales increase, its profit margin will remain at its current level. The company's dividend payout ratio is 40 percent. How much additional capital must the company raise in order to support the 20 percent increase in sales (ignore financing feedback effects)?

a. $2.0 million  
b. $6.0 million  
c. $8.4 million  
d. $9.6 million  
e. $14.0 million

4. Reed Pharmaceutical has a target fixed assets to sales ratio of 40.0 percent. The firm had fixed assets of $1,000,000 last year and operated them at 80% of capacity. What were Reed's actual sales last year?

a. $1,500,000  
b. $2,000,000  
c. $1,750,000  
d. $2,250,000  
e. $2,500,000

5. You have recently gotten a job and you are wondering how much to save for retirement. Your salary is expected to be $150,000 per year, with the first payment occurring at the end of year 1. Assume that your salary is expected to remain the same for the next 25 years that you plan to work. You plan to save a constant fraction of your salary each year and your savings are expected to earn a return of 10% per year. At the end of year 25, you plan to invest the accumulated amount into a mutual fund that invests in government securities. This mutual fund is expected to earn only 5% per year. From year 26 onwards (the first year after retirement), you will withdraw from the mutual fund to cover your expenses. Your expense (occurring at the end of the year) is expected to be $100,000. Your life expectancy after retirement is 20 years. What constant fraction of your salary should you save each year assuming you don't want to leave behind any dollars?

a. 27.03%  
b. 17.41%  
c. 8.45%  
d. 6.15%  
e. 10.23%
6. After looking at the size of your tax outflow on your salary slip, you realize that you need to do some tax planning. Since interest on mortgage payments is tax-deductible, you decide to buy a home, especially given that mortgage rates are low right now. Based on your monthly salary and monthly expenses, you realize that you can spare $4,000 per month for mortgage payment. You have saved up $50,000, which will be used for down payment. How big a house can you buy if you take a 30-year loan at 6% nominal rate compounded monthly with the first payment being made today and how much interest would you have paid after 10 years (121st payment)?

a. $720,502; $370,612  
b. $717,166; $367,821  
c. $670,502; $350,317  
d. $720,502; $408,338  
e. $670,502; $335,216

7. You see an advertisement in the paper that offers you the chance to buy a vineyard if you make a payment of $10,000 at the end of years 1 through 5. In return, you will get wine worth $2,000 a year forever starting with the end of year 6. If this is a fair deal, what is the implied interest rate? (You may wish to use the formula route to solve the problem algebraically)

a. 2.15%  
b. 8.35%  
c. 4.02%  
d. 3.71%  
e. 6.24%

8. Chambers Company has been growing at a 10% rate, and it just paid a dividend of $3.00. Due to a new product, Chambers expects to achieve a dramatic increase in its short-run growth rate, to 20 percent annually for the next 2 years. After this time, growth is expected to return to the long-run constant rate of 10 percent. The company's beta is 2.0, the expected return on the market is 11 percent, and the risk-free rate is 7 percent. What is the expected dividend yield (D1/P0) today?

a. 3.93%  
b. 4.60%  
c. 10.00%  
d. 7.54%  
e. 2.33%

9. Boomer Products, Inc. manufactures “no-inhale” cigarettes. As their target customers age and pass on, sales of the product are expected to decline. Thus, demographics suggest that earnings and dividends will decline at a rate of 8% annually forever. The
firm just paid a dividend of $4.00; the required return is 12%. Given these parameters, the price of the stock in 5 years will be:

a. $17.58
b. $15.01
c. $4.22
d. $12.13
e. $5.46

10. Suppose the HomeSafe Cab Co. is considering an expansion which it will finance through additional bond sales. Current outstanding HomeSafe bonds are selling for $1148.77. These have a face value of $1000, a coupon of 8% and 10 years to maturity. If interest is paid semiannually, what must the coupon rate of the new bonds be in order for the issue to sell at par? This issue will also mature in ten years and pay semi-annual coupons.

a. 4.98%
b. 6.00%
c. 7.72%
d. 8.12%
e. 9.30%
Part II: Problems and Calculations (each question is worth two points). Spreadsheet solutions to these problems are acceptable.

1. The 2003 balance sheet for Johnson Pulp and Paper is shown below (in millions of dollars):

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>$3.0</td>
</tr>
<tr>
<td>Accounts payable</td>
<td>$3.0</td>
</tr>
<tr>
<td>Accounts receivable</td>
<td>3.0</td>
</tr>
<tr>
<td>Inventory</td>
<td>5.0</td>
</tr>
<tr>
<td>Current assets</td>
<td>$11.0</td>
</tr>
<tr>
<td>Fixed assets</td>
<td>4.0</td>
</tr>
<tr>
<td>Long-term debt</td>
<td>3.0</td>
</tr>
<tr>
<td>Common Equity</td>
<td>7.5</td>
</tr>
<tr>
<td>Total assets</td>
<td>$15.0</td>
</tr>
<tr>
<td>Total liabilities and equity</td>
<td>$15.0</td>
</tr>
</tbody>
</table>

In 2003, sales were $50 million. In 2004, management believes that sales will increase by 20 percent to a total of $60 million. The profit margin is expected to be 2 percent, and the dividend payout ratio is targeted at 50 percent. No excess capacity exists. What is the additional financing requirement (in millions) for 2004 ignoring financial feedback effects? Draw up the projected 2004 balance sheet assuming that any financing shortfall will be financed equally with notes payable and long-term debt. Compute the projected current ratio, quick ratio, total debt ratio, and long-term debt ratio for 2004.

2. You plan to deposit $1000 at the end of every quarter for the next 20 quarters (the first deposit will be made at the end of quarter 1). What is the present value of this investment if:

   a) Nominal interest rate is 24 percent but compounded continuously
   b) Nominal interest rate is 24 percent but compounded monthly.
   c) Nominal interest rate is 24 percent but compounded quarterly.
   d) Nominal interest rate is 24 percent but compounded semi-annually.
   e) Nominal interest rate is 24 percent but compounded annually.

3. You plan to deposit $1000 at the end of every quarter for the next 20 quarters (the first deposit will be made at the end of quarter 1). What is the future value of this investment at the end of the 40th quarter if:

   a) Nominal interest rate is 24 percent but compounded continuously
   b) Nominal interest rate is 24 percent but compounded monthly.
c) Nominal interest rate is 24 percent but compounded quarterly.
d) Nominal interest rate is 24 percent but compounded semi-annually.
e) Nominal interest rate is 24 percent but compounded annually.

4. You have a 6% coupon bond with semi-annual payments and a par value of $1,000. The last coupon has just been paid. Set up a spreadsheet which shows the actual value expressed as a percentage of the par value of the bond ([value/par value] *100) under the following scenarios:
- The bond matures exactly 1, 2, 3, 4, 5, 6, 7, 8, …, 30 years from today
- The actual YTM is 3.0%, 3.5%, 4.0%, 4.5%, 5.0%, 5.5%, …, 10%

Minimum requirements:
- Show the bond values expressed as a percentage of par value in a matrix which combines all maturities with all YTM’s (2 decimals)

5. You have five bonds with the following specifications:
- Bond A: 20-year bond, 6% coupon, annual coupon payments
- Bond B: 15-year bond, 6% coupon, annual coupon payments
- Bond C: 10-year bond, 6% coupon, annual coupon payments
- Bond D: 5-year bond, 6% coupon, annual coupon payments
- Bond E: 1-year bond, 6% coupon, annual coupon payments

The actual market level of interest rate is 6% for all maturities (i.e. flat term structure of interest rates). This means of course that the actual bond prices for all bonds are at 100%.

Minimum requirements:
- Calculate the new prices again expressed as a percentage of par value for all five bonds if market interest rates (=YTM) for all maturities change immediately to a new level of 1%, 2%, 3%, 4%, 5%, …, 12%.
- Also display the results in a graph similar to Fig. 4-3 on p.168 in the textbook
Part II: Problems and Calculations (each question is worth two points)

Statement of Academic Honesty
(to be turned in together with the answer sheet)

I understand that

a) the GSU Graduate Catalog contains the policy on “Academic Honesty” on pages 53-57, which contains, among other things, statements regarding unauthorized collaboration, falsification, and multiple submissions. (A pdf-version of the GSU Academic Honesty Policy can be found at http://www.gsu.edu/~wwwreg/013grad/008gc-acad%20regs.pdf)

b) the instructions for this Take-Home-Problem Set (THPS) read, in part:

Although you may use your book, notes, etc., all work on this THPS is to be yours alone - any discussion of either the questions on the assignment or your answers with anyone other than the instructor will be considered as cheating and, thus, as a violation of the GSU honor code.

I acknowledge that I have read and that I understand the above statements and I confirm my adherence to those rules.

Student Name (please print): ............................................................
SSN: ...........................................................................
Instructor: .................................................................

------------------------------------------------------------------------
Signature of Student   Date
MBA 8130
Foundations of Corporate Finance

Take-Home Problem Set: Answer Sheet

Instructors:
Genna Brown, Naveen Daniel, Richard Fendler, Charles Hodges, Omesh Kini, Lalitha Naveen, and Milind Shrikhande

Name: .................................................................

Total: ...... /20

Grade: ............ of 100

Part I: Multiple Choice

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1)</td>
<td>2)</td>
<td>3)</td>
<td>4)</td>
</tr>
<tr>
<td>5)</td>
<td>6)</td>
<td>7)</td>
<td>8)</td>
</tr>
<tr>
<td>9)</td>
<td>10)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>