AGEC $424$ EXAM 1 Fall 2012 (172 points)

Show your work for all questions (even if I forgot to put a reminder on the question). Logically correct work must be shown to receive credit for your answers.

I. Computron Industries: Balance Sheet as of December 31 ($ thousands)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>$ 100</td>
<td>Accts payable</td>
</tr>
<tr>
<td>AR</td>
<td>400</td>
<td>Notes Payable</td>
</tr>
<tr>
<td>Inventories</td>
<td>600</td>
<td>Accruals</td>
</tr>
<tr>
<td>Total CA</td>
<td>$1,100</td>
<td>Total CL</td>
</tr>
<tr>
<td>Net FA</td>
<td>$ 500</td>
<td>Long-term debt</td>
</tr>
<tr>
<td>Total Assets</td>
<td>$1,600</td>
<td>Common stock</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Retained earnings</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total Equity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total L &amp; OE</td>
</tr>
</tbody>
</table>

Computron Industries: Income Statement for Year Ended December 31

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>$ 5,000</td>
<td></td>
</tr>
<tr>
<td>COGS</td>
<td>(3,500)</td>
<td></td>
</tr>
<tr>
<td>Other expenses</td>
<td>(1,000)</td>
<td></td>
</tr>
<tr>
<td>Deprec.</td>
<td>(250)</td>
<td>EBIT</td>
</tr>
<tr>
<td>Interest exp.</td>
<td>(50)</td>
<td>EBT</td>
</tr>
<tr>
<td>Taxes (30%)</td>
<td>(60)</td>
<td>Net income</td>
</tr>
</tbody>
</table>

Other data for Computron Industries:
Dec. 31 stock price $18
Number of shares outstanding 150
Dividends per share $0.44
Lease payments $20

You may remove this page, but put your name at the top of page 2.
1. (38 points) Calculate ratios for Computron Industries for use in comparison to the following industry averages. **Show your work in the Computron Industries box.**

<table>
<thead>
<tr>
<th>Ratio</th>
<th>Industry average</th>
<th>Computron Industries</th>
<th>Evaluate briefly and then support your statement by comparing to the industry average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debt ratio (TL/TA)</td>
<td>50%</td>
<td>( \frac{900}{1600} = 56.25% )</td>
<td>Evaluate debt level: Computron has a little higher debt than the industry as indicated by the debt ratio. The company can cover interest expense well (CIE = 5) but not as well as the industry (CIE of 7.5).</td>
</tr>
<tr>
<td>Times Interest Earned</td>
<td>7.5x</td>
<td>( \frac{750}{50} = 15x )</td>
<td>Evaluate asset management: CI manages assets better than the industry with a TIE that is 56% greater. They manage receivables and fixed assets better as well (lower DSO and higher FAST). Their inventory management is slightly weak (lower ITO).</td>
</tr>
<tr>
<td>Inventory turnover</td>
<td>8x</td>
<td>( \frac{3500}{600} = 5.83x )</td>
<td></td>
</tr>
<tr>
<td>Days sales outstanding</td>
<td>40 days</td>
<td>( \frac{400}{500} \times 360 = 28.8 \text{ da.} )</td>
<td></td>
</tr>
<tr>
<td>Fixed Asset turnover</td>
<td>5x</td>
<td>( \frac{5000}{1600} = 3.125x )</td>
<td></td>
</tr>
<tr>
<td>Total assets turnover</td>
<td>2.0x</td>
<td>( \frac{5000}{500} = 10x )</td>
<td></td>
</tr>
<tr>
<td>Profit margin (Return on Sales)</td>
<td>3.0%</td>
<td>( \frac{140}{5000} = 2.8% )</td>
<td>Evaluate profitability: CI is more profitable than the industry as indicated by higher ROA &amp; ROE. CI’s ROS is slightly lower/worse than the industry.</td>
</tr>
<tr>
<td>Return on total assets (ROA)</td>
<td>6%</td>
<td>( \frac{140}{1600} = 8.75% )</td>
<td></td>
</tr>
<tr>
<td>Return on equity (ROE)</td>
<td>12%</td>
<td>( \frac{140}{700} = 20.9% )</td>
<td></td>
</tr>
<tr>
<td>Price-Earnings</td>
<td>13x</td>
<td>( \frac{18}{140} = 19.29x )</td>
<td></td>
</tr>
<tr>
<td>Market to Book</td>
<td>2.0x</td>
<td>( \frac{18}{700} = 3.86x )</td>
<td>Evaluate market ratios: Both market ratios of CI are better than the industry — higher P/E &amp; M/B.</td>
</tr>
<tr>
<td>Accounts pay. deferral</td>
<td>20 da.</td>
<td>( \frac{150}{3500} \times 360 = 15.43 \text{ da} )</td>
<td></td>
</tr>
<tr>
<td>Inventory Conv. Period</td>
<td>45 da.</td>
<td>( \frac{360}{5.83 \times 360} = 61.71 \text{ da} )</td>
<td></td>
</tr>
</tbody>
</table>

Don’t evaluate.
Use the above data for questions 2 through 5.

2. (10 points) Construct the extended Du Pont equation for both Computron and for the industry. Then analyze the component breakdown of the company's ROE in comparison to the industry (say something about each component).

\[
\text{ROS} \times \frac{\text{TAT}}{\text{EM}} = \text{ROE}
\]

\[
\text{CI} \quad 2.8 \times 3.125 \times 2.39 = 20
\]

\[
\text{Ind} \quad 3.0 \times 2.0 \times 2 = 12
\]

\[
\text{ratio} \quad 0.93 \quad 1.56 \quad 1.15 \quad 1.21
\]

CI has 67% better ROE achieved by 14.5% higher EM, 56% better TAT, and 7% worse ROS

\[
\text{CIEM} = \frac{1600}{700} = 2.2857
\]

\[
\text{Ind EM} = \frac{1}{1.5} = 0.67
\]

If you have Assets + Equity, use them.

If you only have the debt ratio, use it.

3. (4 points) Which is more responsible for the deviation of Computron’s ROE from the industry average: cost control, asset management, or debt management? **Explain.**

Asset mgmt. Could not be cost control (ROS is less than industry) and EM is only 14.5% more vs. 56% better ROA

4. (8 points) Show a side by side comparison of the cash conversion cycle for Computron with the industry. Use the CCC to analyze working capital management for Computron in comparison to the industry (say something about each component). Say which is best and why?

\[
\text{ICP + D50 - APdef} = \text{CCC}
\]

\[
\text{CI} \quad 62 + 29 - 15 = 76
\]

\[
\text{Ind} \quad 45 + 40 - 20 = 65
\]

\[
\text{Days} \quad +17 \quad +11 \quad 15 \quad +11
\]

CI’s working capital is not quite as good as the industry with an 11 day longer CCC. CI has a 17 day longer (worse) ICP, 11 day shorter (better) D50, and 5 day shorter (worse) APdef.

5. (4 points) Based on the ratios and information in questions 1-4, point out any red flags and/or major successes that you see for Computron.

I don’t see any real red flags.

Overall ROA is higher due to good TAT (asset mgmt), boosted more with a higher EM due to more debt than the industry.

CI also has very good market ratios.
6. (10 points) Jill’s Wigs Inc. had the following balance sheet last year:

<table>
<thead>
<tr>
<th></th>
<th>Last</th>
<th>Factor</th>
<th>1st Pass</th>
<th></th>
<th>Last</th>
<th>Factor</th>
<th>1st Pass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>$ 800</td>
<td>2</td>
<td>1,600</td>
<td>Accounts payable</td>
<td>$ 350</td>
<td>2</td>
<td>700</td>
</tr>
<tr>
<td>Accounts rec.</td>
<td>450</td>
<td>2</td>
<td>900</td>
<td>Accrued wages</td>
<td>150</td>
<td>2</td>
<td>300</td>
</tr>
<tr>
<td>Inventory</td>
<td>950</td>
<td>2</td>
<td>1,900</td>
<td>Notes payable</td>
<td>2,000</td>
<td>2</td>
<td>200</td>
</tr>
<tr>
<td>Fixed assets</td>
<td>34,000</td>
<td>1.6</td>
<td>54,400</td>
<td>Mortgage</td>
<td>26,500</td>
<td>2</td>
<td>53,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Common stock</td>
<td>3,200</td>
<td>2</td>
<td>6,400</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Retained earnings</td>
<td>4,000</td>
<td>2</td>
<td>8,000</td>
</tr>
<tr>
<td>Total assets</td>
<td>$36,200</td>
<td></td>
<td>58,800</td>
<td>Total liabilities</td>
<td></td>
<td></td>
<td>37,700</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>and equity</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Jill has just invented a non-slip wig for men which she expects will cause sales to double, increasing after-tax net income to $1,000. She was at 80% of capacity last year. Will Jill need any outside capital if she pays no dividends? If so, how much? Show the forecast balance sheet above and your final answer and supporting calculations below.

\[
\text{NI} \quad 1000 \quad - \quad 0 \quad \text{div} \quad = \quad RE \quad 1000 \\
\text{sales factor} \quad 2 \quad ; \quad \text{capacity} \quad 0.8 \times 2 \quad = \quad 1.60
\]

\[
\begin{align*}
58,800 & \quad \text{RE} 1000 \\
\text{yes} & \quad \Rightarrow \quad 21,100 \quad \text{AFN}
\end{align*}
\]

7. (5 points) Sweet Tooth Cookies, Inc. has the following ratios

ROE \quad = \quad 15\% \\
T/A turnover \quad = \quad 1.2 \\
ROS \quad = \quad 10\%

What percentage of its assets are financed by equity?

\[
15 \quad = \quad 10 \times 1.2 \times \frac{A}{E} \quad \Rightarrow \quad \frac{A}{E} = \frac{15}{10} = \frac{3}{2} = 80\%
\]

8. (10 points) The Paragon Company has sales of $2,000 with a cost ratio of 60%, current ratio of 1.5, inventory turnover ratio (based on cost) of 3.0, and average collection period (ACP) of 45 days. Complete the following current section of the firm’s balance sheet. Show and label your work to clearly indicate how you solve for each unknown:

<p>| | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>$ 475</td>
<td></td>
<td></td>
<td>Accts Payable</td>
<td>$ 690</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accts Rec</td>
<td>250</td>
<td></td>
<td></td>
<td>Accruals</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inventory</td>
<td>400</td>
<td></td>
<td></td>
<td>Current Liabs</td>
<td>$ 750</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Assets</td>
<td>$1,125</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[
\text{COGS} \quad = \quad 0.6 \times 2000 \quad = \quad 1200
\]

\[
\frac{\text{CA}}{750} = 1.5 \quad \Rightarrow \quad \text{CA} = 1.5 \times 750 = 1125
\]

\[
3 \quad = \quad \frac{1200}{\text{inv}} \quad \Rightarrow \quad \text{inv} = \frac{1200}{3} = 400
\]

\[
45 \quad = \quad \frac{\text{AR}}{2000} \times 360 \quad \Rightarrow \quad \text{AR} = \frac{45 \times 2000}{360} = 250
\]
8. (30 points) You have been given the attached information on the Crum Company. Crum expects sales to grow by 50% next year, and variable costs should increase at the same percentage. Fixed assets were being operated at 80% of capacity last year. Fixed costs will increase with fixed assets. Underutilized fixed assets cannot be sold. Current assets and spontaneous liabilities should increase at the same rate as sales. The company plans to finance any external funds needed as 35% notes payable and 65% common stock. After taking financing feedback into account, and after the second pass, what is Crum’s projected AFN using the projected balance sheet method?

<table>
<thead>
<tr>
<th>Last yr.</th>
<th>factor</th>
<th>1st pass</th>
<th>feed-</th>
<th>Next yr.</th>
<th>2nd pass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>$1,000.00</td>
<td>1.5</td>
<td>1500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variable costs</td>
<td>600.00</td>
<td>1.5</td>
<td>-900</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed costs</td>
<td>200.00</td>
<td>1.2</td>
<td>-240</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EBIT</td>
<td>$200.00</td>
<td></td>
<td></td>
<td>360</td>
<td>360.01</td>
</tr>
<tr>
<td>Interest</td>
<td>$16.00</td>
<td></td>
<td>-16</td>
<td>+7.01</td>
<td>-23.07</td>
</tr>
<tr>
<td>EBT</td>
<td>$184.00</td>
<td></td>
<td>344</td>
<td></td>
<td>336.93</td>
</tr>
<tr>
<td>Taxes (40%)</td>
<td>73.60</td>
<td></td>
<td>-137.6</td>
<td></td>
<td>-134.77</td>
</tr>
<tr>
<td>Net Income</td>
<td>$110.40</td>
<td></td>
<td>206.40</td>
<td></td>
<td>202.16</td>
</tr>
<tr>
<td>Dividends (60%)</td>
<td>66.24</td>
<td></td>
<td>127.84</td>
<td></td>
<td>121.36</td>
</tr>
<tr>
<td>Add'n to R.E.</td>
<td>$44.16</td>
<td></td>
<td>82.54</td>
<td></td>
<td>80.86</td>
</tr>
<tr>
<td>Current Assets</td>
<td>$700.00</td>
<td>1.5</td>
<td>1050</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net fixed Assets</td>
<td>300.00</td>
<td>1.2</td>
<td>360</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total assets</td>
<td>$1,000.00</td>
<td></td>
<td>1410</td>
<td></td>
<td>1410</td>
</tr>
<tr>
<td>A/P and Accruals</td>
<td>$150.00</td>
<td>1.5</td>
<td>225</td>
<td></td>
<td>225.35</td>
</tr>
<tr>
<td>N/P 8.00%</td>
<td>200.00</td>
<td></td>
<td>200</td>
<td>89.35</td>
<td>288.35</td>
</tr>
<tr>
<td>Common stock</td>
<td>150.00</td>
<td></td>
<td>150</td>
<td>14.09</td>
<td>314.09</td>
</tr>
<tr>
<td>Retained earnings</td>
<td>500.00</td>
<td></td>
<td>582.56</td>
<td>80.86</td>
<td>580.86</td>
</tr>
<tr>
<td>Total Liab &amp; Equity</td>
<td>$1,000.00</td>
<td></td>
<td>1157.56</td>
<td></td>
<td>1408.30</td>
</tr>
</tbody>
</table>

AFN 1st Pass: \(1410 - 1157.56 = 252.44\) AFN 2nd Pass \(1.70\) Cumul. AFN \(254.14\)

Show work below including capacity calculation, division of first pass AFN into stock and notes payable, and interest calculations:
9. (5 points) Inflation is expected to be 5% next year and a steady 7% each year thereafter. Maturity risk premiums are zero for one-year debt but have an increasing value for longer debt. One-year government debt yields 9% whereas two-year debt yields 11%.
   a. What is the real risk-free rate and the maturity risk premium for two-year debt?
   b. Forecast the nominal yield on one- and two-year government debt issued at the beginning of the second year.

\[ K = K_{PR} + \frac{\text{INF} + \text{DR} + \text{LR} + \text{MR}}{2} \]

Show work here for a and b:

\[ q = K_{PR} + \frac{5}{2} + 0 + 0 + 0 \Rightarrow K_{PR} = 4 \]

\[ n = 4 + \frac{5}{2} + 0 + 0 + 0 + 0 \Rightarrow \text{MR} = 1 \]

b. \[ K_{2yr} = 4 + 7 + 0 + 0 + 0 + 0 = 11\% \text{ on 2-year debt} \]
   \[ K_{2yr} = 4 + 7 + 0 + 0 + 0 + 1 = 12\% \text{ 2 year debt} \]

10. (3 points) Adams Inc. recently borrowed money for one year at 9%. The pure rate is 3%, and Adams’ financial condition warrants a default risk premium of 2% and a liquidity risk premium of 1%. There is little or no maturity risk in one-year loans. What inflation rate do lenders expect next year?

\[ K = K_{PR} + \frac{\text{INF} + \text{DR} + \text{LR} + \text{MR}}{2} \]

Show work here: \[ q = 3 + \frac{\text{INF} + 2 + 1}{2} + 0 \Rightarrow \text{INF} = 3\% \]

11. (3 points) C indicate the firm’s capacity to meet its debt obligations, both short term and long term.
   a. Liquidity ratios
   b. Asset management ratios
   c. Debt management ratios
   d. Profitability ratios

12. (3 points) The ratio group most likely to be used to indicate a firm’s ability to meet short-term financial obligations would be:
   a. liquidity ratios
   b. financial leverage ratios
   c. activity ratios
   d. profitability ratios

13. (3 points) Which of the following is not affected by a change in interest expense?
   a. Gross margin
   b. EBIT
   c. ROE
   d. A and b

14. (3 points) CVD, Inc. has an equity multiplier of 2. What is CVD’s stockholders’ equity if total liabilities are $100,000? Show your work
   a. $100,000
   b. $150,000
   c. $200,000
   d. $50,000

\[ \frac{\text{Assets}}{\text{Equity}} = 2 \Rightarrow \frac{100,000 + E}{E} = 2 \]

\[ 100,000 + E = 2E \]

\[ E = \frac{100,000}{2} = 50,000 \]
15. (3 points) Which of the following is not a short-term debt instrument?
   a. Commercial paper
   b. Common stock
   c. Money market securities
   d. Treasury bills

16. (3 points) Which organization typically helps a company market new securities?
   a. Commercial bank
   b. Insurance company
   c. Investment bank
   d. Mutual fund

17. (3 points) The ______ has traditionally been called the “over-the-counter” market.
   a. American Stock Exchange
   b. NASDAQ
   c. New York Stock Exchange
   d. money

18. (3 points) Interest rates and stock prices move:
   a. randomly exhibiting no causal relationship.
   b. in opposite directions.
   c. up and down together.
   d. none of the above

19. (3 points) The income statement is intended to inform the reader of:
   a. the overall financial condition of the firm at a point in time
   b. how much the firm has earned during an accounting period
   c. how much income has been distributed to shareholders
   d. the cash flow generated by the firm over a period of time

20. (3 points) Which of the following does not cause accounting profit and cash flow to differ?
   a. Depreciation
   b. Sales made on credit
   c. Payroll expense
   d. Inventory purchased but not yet sold

21. (3 points) Which of the following does not appear on the income statement?
   a. Cost of Goods Sold
   b. Depreciation Expense
   c. Accumulated Depreciation
   d. Earnings Before Interest and Tax
   e. Gross Margin
22. (12 points) The following question(s) refer to the year-end account balances for UBUS Inc. The accounts are listed in alphabetical order, NOT in the order they appear on the financial statements. The applicable tax rate is 40%. Show your work.

**UBUS Income Statement**
- Cost of Goods Sold: 330
- Depreciation Expense: 35
- Interest Expense: 20
- Operating Expense (excluding depreciation): 115
- Sales: 600
- Tax rate: 40%

**UBUS Balance Sheet**
- Accounts Payable: 35
- Accounts Receivable: 65
- Accruals: 30
- Accumulated Depreciation: (175)
- Cash: 35
- Common Stock: 120
- Fixed Assets (gross): 390
- Inventory: 135
- Long-Term Debt: 200
- Retained Earnings: 65

a) What was UBUS Inc.’s earnings before interest and taxes (EBIT)?
   a. $155
   b. $120
   c. $100
   d. $215
   e. $200

b) What is UBUS Inc.’s tax liability (also show EBT)?
   a. $48
   b. $60
   c. $55
   d. $40
   e. $35

C
   100
   - 40
   60

c) What was UBUS Inc.’s Net Income?
   a. $72
   b. $45
   c. $60
   d. ($20)
   e. $100

D
   120
   - 20
   100 EBT
   x .4
   40

D
   235
   - 35 - 30
   = 170

e) What is UBUS Inc.’s Total Equity?
   a. $115
   b. $120
   c. $185
   d. $205
   e. $240

f) What is UBUS Inc.’s Net Working Capital?
   a. $35
   b. $70
   c. $100
   d. $130
   e. $170

D
   120
   - 65
   55
   + 35 CA
   215 NFA

D
   65 + 35 - 175 = 235 CA
   -175 + 390 = 215 NFA
   450

C
   CA - CL

D
   235 - 35 - 30 = 170

E
   215