1. (45 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 of by comparing to the industry average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Ratio</td>
<td>2.7x</td>
<td>( \frac{1290}{540} = 2.39x )</td>
<td>Evaluate liquidity: CI is a bit less liquid than the industry as indicated by the current ratio and of equal liquidity according to the quick ratio.</td>
</tr>
<tr>
<td>Quick Ratio</td>
<td>1.0x</td>
<td>( \frac{1290 - 736}{540} = 1.03x )</td>
<td></td>
</tr>
<tr>
<td>Debt ratio (TL/TA)</td>
<td>50%</td>
<td>( \frac{1190}{1650} = 72.190 )</td>
<td>Evaluate debt level: Computron has substantially more debt than the industry as indicated by its high debt ratio, but CI has much better ability to pay its interest than the industry as indicated by the TIE.</td>
</tr>
<tr>
<td>Times Interest Earned</td>
<td>2.5x</td>
<td>( \frac{340}{78} = 4.36x )</td>
<td></td>
</tr>
<tr>
<td>Inventory turnover</td>
<td>5x</td>
<td>( \frac{4500}{736} = 6.11x )</td>
<td>Evaluate asset management CI has significantly better asset management than the industry with an 82% higher TAT. The ratios indicate CI has better management of inventories, receivables, and fixed assets.</td>
</tr>
<tr>
<td>Days sales outstanding</td>
<td>40 days</td>
<td>( \frac{402}{6000} \times 360 = 24.12 )</td>
<td></td>
</tr>
<tr>
<td>Fixed Asset turnover</td>
<td>4.5x</td>
<td>( \frac{6000}{360} = 14.67x )</td>
<td></td>
</tr>
<tr>
<td>Total assets turnover</td>
<td>2.0x</td>
<td>( \frac{6000}{1650} = 3.64x )</td>
<td></td>
</tr>
<tr>
<td>Profit margin (Return on Sales)</td>
<td>3.0%</td>
<td>( \frac{183.4}{6000} = 3.06x )</td>
<td>Evaluate profitability: CI's profit margin is only equal to the industry, but ROA is 85% bigger than the industry and ROE is more than triple the industry, CI's ROE is outstanding</td>
</tr>
<tr>
<td>Return on total assets (ROA)</td>
<td>6%</td>
<td>( \frac{183.4}{1650} = 11.12x )</td>
<td></td>
</tr>
<tr>
<td>Return on equity (ROE)</td>
<td>12%</td>
<td>( \frac{183.4}{460} = 39.87x )</td>
<td></td>
</tr>
<tr>
<td>Price-Earnings</td>
<td>15x</td>
<td>( \frac{14}{1.934} = 7.63x )</td>
<td>Evaluate market ratios: CI's P/E is better than the industry but CI's low P/E ratio indicates the market does not expect high growth in earnings for CI.</td>
</tr>
<tr>
<td>Market to Book</td>
<td>2.2x</td>
<td>( \frac{14}{4.6} = 3.04x )</td>
<td></td>
</tr>
<tr>
<td>Accounts pay. deferral</td>
<td>20 da.</td>
<td>( \frac{7500}{4500} \times 360 = 6.0 )</td>
<td>Don't evaluate.</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------</td>
<td>-----------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Inventory Conv. Period</td>
<td>72 da.</td>
<td>( \frac{796}{4500} \times 360 = 58.88 )</td>
<td></td>
</tr>
</tbody>
</table>

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).

\[
\begin{align*}
\text{C.I.} : & \quad 3.06 \times 3.64 \times 3.59 = 39.37 \\
\text{Ind.} : & \quad 3 \times 2 \times 2 = 12
\end{align*}
\]

CI has a 3.32 times greater ROE resulting from a 27% larger ROS, 82% greater TAT and 80% larger EM.

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 + debt management contribute about the same, but asset management slightly more 82% greater vs 80% greater. Cost control affects PM which is only 2% larger for CI

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 which is best and why?

\[
\begin{align*}
\text{CCC} = & \quad \text{ICP} + \text{DSO} - \text{APdof} = \text{CCC} \\
\text{CI} : & \quad 58.88 + 24.12 - 6 = 77 \text{days} \\
\text{Ind.} : & \quad 72 + 40 - 20 = 92 \text{days}
\end{align*}
\]

CI has better working capital management indicated by a 15 day shorter CCC. A 13 day shorter inventory conversion period and 16 days fewer DSO contribute to the shorter CCC, but a 14 day shorter APdof lengthens CI's CCC compared to the ind.

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

I do not see any red flags, but there are many successes. ROE is very high due to asset management (good across the board) and high debt. I don't know why the market expects slow growth, but it should be investigated.
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>1&lt;sup&gt;st&lt;/sup&gt; Pass</th>
<th>Accounts payable</th>
<th>Last</th>
<th>Factor</th>
<th>1&lt;sup&gt;st&lt;/sup&gt; Pass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>$ 800</td>
<td>2</td>
<td>1600</td>
<td>$ 350</td>
<td>2</td>
<td>700</td>
<td></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></td>
<td></td>
<td>Notes payable</td>
<td>2,000</td>
<td>2</td>
<td>2,000</td>
</tr>
<tr>
<td>Fixed assets</td>
<td>34,000</td>
<td>1.4</td>
<td>47,600</td>
<td>Mortgage</td>
<td>26,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Common stock</td>
<td>3,200</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Retained earnings</td>
<td>4,000</td>
<td>+100</td>
<td>5,000</td>
</tr>
<tr>
<td>Total assets</td>
<td>$36,200</td>
<td></td>
<td>52,000</td>
<td>Total liabilities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>and equity</td>
<td>$36,200</td>
<td></td>
<td>37,700</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 70% 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 calculations below.

\[ 0.7 \times 2 = 1.4 \]

\[ 52,000 - 37,700 = 14,300 \text{ AFN} \]

7. (10 points) The Paragon Company has sales of $2,000 with a cost ratio of 69%, 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.

- Cash $475
- Accs Rec $690
- Inventory $400
- Current Assets $1,925
- Accts Payable $690
- Accruals $60
- Current Liabs $750

Show and label your work to clearly indicate how you solve for each unknown:

\[ \text{COGS} = 2,000 \times 0.6 = 1,200 \]

\[ \frac{\text{CA}}{750} = 1.5 \Rightarrow \text{CA} = 1.5 \times 750 = 1,125 \]

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

\[ \frac{\text{AR} \times 360}{2000} = 45 \Rightarrow \text{AR} = \frac{45 \times 2000}{360} = 250 \]

\[ \text{Cash} = 1,125 - 250 - 400 = 475 \]
Hogan Inc. generated EBIT of $240,000 this past year using assets of $1,100,000. The interest rate on its existing long-term debt of $640,000 is 12.5 percent and the firm's tax rate is 40 percent. The firm paid a dividend of $1.27 on each of its 37,800 shares outstanding from net income of $96,000. The total book value of equity is $446,364 of which the common stock account equals $335,000. The firm's shares sell for $28.00 per share in the market. The firm forecasts a 10% increase in sales, assets, and EBIT next year, and a dividend of $1.40 per share. If the firm needs additional capital funds, it will raise 60% with debt and 40% with equity. The cost of any new debt will be 13%. Spontaneous liabilities are estimated at $15,000 for next year, representing an increase of 10% over this year. Except for spontaneous liabilities, the firm uses no other sources of current liabilities and will continue this policy in the future. What will be the cumulative AFN Hogan will need to balance its projected balance sheet using the projected balance sheet method through the first two passes?

<table>
<thead>
<tr>
<th>Forecast</th>
<th>Last Year</th>
<th>Basis</th>
<th>First Pass</th>
<th>Feedback</th>
<th>Second Pass</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBIT</td>
<td>$240,000</td>
<td>1.10</td>
<td>$264,000</td>
<td>+3,990</td>
<td>$264,000</td>
</tr>
<tr>
<td>- Interest</td>
<td>80,000</td>
<td></td>
<td>-80,000</td>
<td></td>
<td>-83,990</td>
</tr>
<tr>
<td>EBT</td>
<td>$160,000</td>
<td></td>
<td>$184,000</td>
<td></td>
<td>$180,010</td>
</tr>
<tr>
<td>- Taxes</td>
<td>64,000</td>
<td></td>
<td>-73,600</td>
<td></td>
<td>-72,004</td>
</tr>
<tr>
<td>EAT = NI</td>
<td>$96,000</td>
<td></td>
<td>$110,400</td>
<td></td>
<td>$108,006</td>
</tr>
<tr>
<td>NI avail. to common</td>
<td>$96,000</td>
<td></td>
<td>$110,400</td>
<td></td>
<td>$108,006</td>
</tr>
<tr>
<td>Divs. to common</td>
<td>(37,800 × $1.27)</td>
<td>48,006</td>
<td>37,800 × 1.40</td>
<td>52,920</td>
<td>1,023</td>
</tr>
<tr>
<td>Addition to RE</td>
<td>$47,994</td>
<td></td>
<td>$57,480</td>
<td></td>
<td>$54,063</td>
</tr>
<tr>
<td>Total assets</td>
<td>$1,100,000</td>
<td>1.10</td>
<td>$1,210,000</td>
<td></td>
<td>$1,210,000</td>
</tr>
<tr>
<td>Accruals &amp; AP</td>
<td>$13,636</td>
<td>1.10</td>
<td>$15,000</td>
<td></td>
<td>$15,000</td>
</tr>
<tr>
<td>Long-term debt</td>
<td>640,000</td>
<td></td>
<td>640,000</td>
<td>+30,694</td>
<td>670,694</td>
</tr>
<tr>
<td>Stock</td>
<td>335,000</td>
<td></td>
<td>335,000</td>
<td>+20,462</td>
<td>355,462</td>
</tr>
<tr>
<td>RE</td>
<td>111,364</td>
<td>+57,480</td>
<td>168,844</td>
<td>-3,417</td>
<td>165,427</td>
</tr>
<tr>
<td>Total liab &amp; equity</td>
<td>$1,100,000</td>
<td></td>
<td>$1,158,844</td>
<td></td>
<td>$1,206,583</td>
</tr>
<tr>
<td>AFN</td>
<td>$51,156</td>
<td></td>
<td>$51,156</td>
<td></td>
<td>$54,573</td>
</tr>
<tr>
<td>Cumulative AFN</td>
<td>51,156</td>
<td></td>
<td></td>
<td></td>
<td>3,417</td>
</tr>
</tbody>
</table>

**AFN financing (first pass)**

Long-term debt: \(0.60 \times 51,156 = 30,694\) (new int.: \(0.13(30694)=3990\))

Common stock: \(0.40 \times 51,156 = 20,462\)

\[
\frac{20,462}{51,156} = 0.40
\]

Increase in shares of common stock: \(20,462/28 = 731\) shares.

Dividend: \(731 \times 1.40 = 1,023\).
9. (4 points) Use the following information to calculate the interest rate on an eight-year bond just issued by Becher Inc.
Inflation: next two years = 2.5%; year 3 and beyond = 4.5%
Pure Rate = 2.0%; Maturity Risk Premium = zero for a 1-year maturity, increasing by .1% each year thereafter; Default Risk Premium = 1.5%; Liquidity Risk Premium = 0.0% for treasuries; 0.5% for Corporate bonds
a. 7.7%
   b. 8.2%
   c. 8.7%
   d. 9.2%
   e. 9.4%
   Show work here: \[ K = K_{PR} + TVR + LRP + DR \]
   \[ = 2 + 4 + 0.5 + \left(\frac{1.1}{11}\right) + 1.5 \approx 8.7 \]
   \[ TVR = \frac{2 \times 2.5 + 6 \times 4.5}{8} = 4 \]

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?
   Show work here:
   \[ Q = 3 + 2 + 1 + TVR \]
   \[ TVR = 3 \]

11. (3 points) Sweet Tooth Cookies, Inc. has the following ratios

   \[ \text{ROE} = 15\% \]
   \[ \text{T/A turnover} = 1.2 \]
   \[ \text{ROS} = 10\% \]

   What percentage of its assets is financed by equity?
   \[ 15 = 10 \times 1.2 \times \frac{\text{Assets}}{\text{Equity}} \Rightarrow \frac{\text{Assets}}{\text{Equity}} = \frac{15}{12} \]
   \[ \Rightarrow \frac{\text{Equity}}{\text{Assets}} = \frac{12}{15} = .8 \quad \text{(80\%)} \]

12. (2 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
   A

13. (2 points) Which of the following ratios would probably not be used to assess the profitability of a firm?
   a. Return on stockholders’ equity
   b. Return on total assets
   c. Times interest earned
   d. A and c only
   C

14. (2 points) Interest rates and stock prices move:
   a. randomly exhibiting no causal relationship.
   b. in opposite directions.
   c. up and down together.
   B
15. (2 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
   e. All of the above

16. (3 points) Marshall Manufacturing has an ACP of 60 days, an inventory turnover of 6, and turns its payables over once a month. How long is Marshall’s cash conversion cycle? (Assume a 360-day year)
   a. 30 days
   b. 60 days
   c. 90 days
   d. 120 days
   
   ![Work Here]

17. (2 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) Wessel Corp. plans to sell 1,000 units in 2005 at an average sale price of $45 each. Cost of goods sold will be 40% of the sale price. Depreciation expense will be $3,000, interest expense $2,500, and other expenses will be $4,000. Wessel’s tax rate is 20%. What will Wessel Corp.’s net income be for 2005?
   a. $3,500
   b. $6,800
   c. $14,000
   d. $16,400
   e. $28,400
   
   ![Work Here]

19. (3 points) Gowen Inc. began the year with equity of $1,000,000 and 100,000 shares of stock outstanding. During the year the firm paid a dividend of $1.50 per share. Year-end equity was $1,100,000. Assuming no other factors impacted equity, what was Gowen Inc.’s net income for the year?
   a. $100,000
   b. $150,000
   c. $200,000
   d. $250,000
   e. $300,000
   
   ![Work Here]

20. (3 points) During the last year, Alpha Co had Net Income of $150, paid $20 in dividends, and sold new stock for $40. Beginning equity for the year was $700. Ending equity was
   a. $830
   b. $840
   c. $850
   d. $870
   
   ![Work Here]
21. (2 points) The two forms of equity infusion are
a. long-term debt and common stock
b. direct investment in the company’s stock and the retention of earnings
c. net working capital and accumulated depreciation
d. preferred stock and long-term debt
e. dividends and retained earnings

22. (3 points) Grass Enterprises just closed a good year. It had Sales of $10 million, EBIT of $1 million, and Net Income of $500,000. The firm also paid dividends of $150,000 during the year. If Grass started the year with equity of $900,000, what will its year ending equity be?

a. $1,900,000  
   b. $1,400,000  
   c. $1,250,000  
   d. $850,000

Show work here:

\[
\begin{array}{c}
900,000 \\
+350,000 \\
\hline
1,250,000 \\
\end{array}
\]

23. (3 points) Albert Corp. bought a machine for $10,000 thirteen years ago. It has been depreciated on a straight-line basis over a 20-year life with no salvage value. The firm just sold the machine for $6,000. How much gain/loss should be reported on the sale?

a. $4,000 loss
b. $2,500 loss
c. No gain or loss should be recorded.
d. $2,500 gain
e. $4,000 gain

Show work here:

\[
\begin{align*}
\text{Acc. Dep.} &= 13 \times 500 = 6500 \\
\text{Adjusted Basis} &= 10,000 - 6500 = 3500 \\
\text{Gain} &= 6000 - 3500 = 2500
\end{align*}
\]