I. Axtel Company has the following financial statements.

<table>
<thead>
<tr>
<th>Axtel Company Balance Sheet ($000)</th>
<th>Axtell Company Income Statement For the year ending 12/31/2004 ($000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets</td>
<td>Sales</td>
</tr>
<tr>
<td>12,310.04</td>
<td>$36,227</td>
</tr>
<tr>
<td>Cash $2,875</td>
<td>COGS $19,925</td>
</tr>
<tr>
<td>Accounts Receivable $5,583</td>
<td>Gross Margin $16,302</td>
</tr>
<tr>
<td>Inventory $3,220</td>
<td>Expense $10,868</td>
</tr>
<tr>
<td>CURRENT ASSETS $11,678</td>
<td>EBIT $5,434</td>
</tr>
<tr>
<td>Fixed assets</td>
<td>Interest $713</td>
</tr>
<tr>
<td>Gross $24,360</td>
<td>EBT $4,721</td>
</tr>
<tr>
<td>Accumulated depreciation $(13,313)</td>
<td>Tax $1,605</td>
</tr>
<tr>
<td>Net $11,047</td>
<td>Net Income $3,116</td>
</tr>
<tr>
<td>Total Assets $22,725</td>
<td></td>
</tr>
</tbody>
</table>

**LIABILITIES**

| Accounts payable $1,702            |                                                        |
| Accruals $408                      |                                                        |
| CURRENT LIABILITIES $2,110         |                                                        |
| Long-term debt $6,002              |                                                        |
| Equity $14,613                     |                                                        |
| Total Capital $20,615              |                                                        |
| Total Liabilities and Equity $22,725 |                                                        |

In addition, Axtel retired stock for $1,000,000 and paid a dividend of $1,727,000. Depreciation for the year was $1,166,000. (Hint: Retiring stock means buying it back from shareholders. Assume the purchase was made at book value, and treat it like a negative sale of stock.) Axtel had leasing costs of $7,267,000 in 2004 and had 1,268,000 shares of stock outstanding. The market price of stock in Axtel at the end of 2004 was $38.75 per share.
1. (42 points) Calculate ratios for Axtel Company for use in comparison to the following industry averages. Show your work in the Axtel Company box. In the third column indicate if Axtel Company’s performance is weak, OK, or strong for that particular ratio. Word your brief answer so I can tell if you know whether higher or lower is preferred.

<table>
<thead>
<tr>
<th>Ratio</th>
<th>Industry average</th>
<th>Axtel Company</th>
<th>Indicate weak, OK, or strong and briefly state why.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Ratio</td>
<td>2.7x</td>
<td>5.167%</td>
<td>Strong. Axtel is much more liquid than the industry.</td>
</tr>
<tr>
<td>Quick Ratio</td>
<td>1.0x</td>
<td>5.167%</td>
<td>Strong. Axtel is much more liquid than the industry.</td>
</tr>
<tr>
<td>Debt ratio (TL/TA)</td>
<td>50%</td>
<td>3.557%</td>
<td>Strong. Axtel has less debt and therefore less risk than the average company. But it may be missing investment opportunities. Cap. I see rows that show a lot of off-balance-sheet debt in leases.</td>
</tr>
<tr>
<td>Times-interest-earned</td>
<td>2.5x</td>
<td>7.6x</td>
<td>Strong. Axtel has a good (high) TIE, much higher than the industry.</td>
</tr>
<tr>
<td>Fixed Charge Coverage</td>
<td>2.1x</td>
<td>1.4x</td>
<td>Weak. Axtel uses a lot of leases, which have fixed charges like debt, and when those are accounted for, the coverage ratio is weak. Compared to the industry OK, Axtel is only slightly higher than the industry. It would be better to be significantly higher.</td>
</tr>
<tr>
<td>Inventory turnover</td>
<td>6x</td>
<td>6.2x</td>
<td>OK. Axtel is only slightly higher than the industry. It would be better to be significantly higher.</td>
</tr>
<tr>
<td>Days sales outstanding (ACP)</td>
<td>42 days</td>
<td>5.535%</td>
<td>Weak. Axtel carries more DSO than the average company in the industry. Person has a loose credit policy.</td>
</tr>
<tr>
<td>Fixed assets turnover</td>
<td>10.7x</td>
<td>9.3x</td>
<td>Weak. Axtel turnover has much greater fixed assets in comparison to sales than the industry average.</td>
</tr>
<tr>
<td>Total Assets turnover</td>
<td>2.6x</td>
<td>1.59x</td>
<td>Weak. Axtel turns assets over slower than the average company in the industry.</td>
</tr>
<tr>
<td></td>
<td>Profit margin (Return on Sales)</td>
<td>Return on total assets</td>
<td>Return on equity</td>
</tr>
<tr>
<td>--------------------------</td>
<td>---------------------------------</td>
<td>------------------------</td>
<td>-----------------</td>
</tr>
</tbody>
</table>
| 3.5%                     | \[
\begin{align*}
NE &= \frac{3116}{36227} = 0.086 \\
\text{Sales} &= 8.6%
\end{align*}
\] | \[
\begin{align*}
\text{NE} &= \frac{3116}{22725} = 0.137 \\
\text{ROA} &= 13.7%
\end{align*}
\] | \[
\begin{align*}
\text{NE} &= \frac{3116}{19413} = 0.161 \\
\text{ROE} &= 16.1%
\end{align*}
\] | \[
\begin{align*}
\text{E} &= 28.75 \\
\text{P} &= \frac{28.75}{2.14} = 13.4
\end{align*}
\] | \[
\begin{align*}
\text{Book} &= \frac{1.268}{1.268} = 1.0 \\
\text{M} &= \frac{28.75}{2.14} = 13.4
\end{align*}
\] | Strong. Axtel’s profit margin is more than double the industry average.  
Strong. Axtel’s ROA is significantly higher than the industry average.  
Strong/Ok. Axtel’s ROE is somewhat higher than the industry average.  
Weak. Axtel’s P/E ratio (multiple) is lower than the industry average.  
Strong. Axtel’s market price is a larger multiple of book value than the industry average.  

Use the above data for questions 2 and 3.

2. (8 points) Construct the extended Du Pont equation for Axtel Company and for the industry, and analyze the component breakdown of the company’s ROE in comparison to the industry’s.

\[
P_m \times TAT \times E_m = \text{ROE}
\]

\[
\text{Axtel: } 8.6 \times 1.59 \times 1.555 = 21.3\%
\]

\[
\text{Industry: } 3.5 \times 2.6 \times 2 = 18.2\%
\]

Axtel has a much higher PM than the industry, but has lower asset turnover and a lower equity multiplier. All combined, Axtel is a little higher than the industry.

3. (4 points) Would you say that cost control or asset management is primarily responsible for the deviation of Axtel Company’s ROE from the industry average? Explain.

Clearly cost control in the form of a higher PM is the biggest contributor to Axtel’s superior ROE.

- If you have reasonable arguments for asset mgmt, but don’t realize ROE is a larger factor
- PM is about 2.5 times the industry while the TAT is only 1.6 times bigger for the industry.
4. (12 points) Jill's Wigs Inc. had the following balance sheet last year:

<table>
<thead>
<tr>
<th></th>
<th>Last</th>
<th>Factor 1st Pass</th>
<th>Last</th>
<th>Factor 1st Pass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>$ 800</td>
<td>2</td>
<td>$ 500</td>
<td>2</td>
</tr>
<tr>
<td>Accounts payable</td>
<td>450</td>
<td>2</td>
<td>150</td>
<td>2</td>
</tr>
<tr>
<td>Inventory</td>
<td>950</td>
<td>2</td>
<td>1400</td>
<td>2</td>
</tr>
<tr>
<td>Net fixed assets</td>
<td>34,000</td>
<td>1.4</td>
<td>34,000</td>
<td>1.4</td>
</tr>
<tr>
<td>Notes payable</td>
<td>2,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mortgage</td>
<td>26,500</td>
<td></td>
<td>26,500</td>
<td></td>
</tr>
<tr>
<td>Common stock</td>
<td>3,200</td>
<td></td>
<td>3,200</td>
<td></td>
</tr>
<tr>
<td>Retained earnings</td>
<td>1,000</td>
<td></td>
<td>1,000</td>
<td></td>
</tr>
</tbody>
</table>

Total assets $36,200, 38,400, 38,200

Jill has just invented a non-slip wig for men which she expects will cause sales to double, increasing after-tax net income to $2,600. She was at 80% of capacity last year.

(a) Will Jill need any outside capital if she pays dividends of $500?

$3,200 - $500 = $2,700 RE

(b) If so, how much?

500 x 2.7 1,000

38,400

-38,200

200 AFN

5. (12 points) A firm has the following balance sheet:

<table>
<thead>
<tr>
<th></th>
<th>Last</th>
<th>Factor 1st Pass</th>
<th>Last</th>
<th>Factor 1st Pass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>$ 10</td>
<td>1.4</td>
<td>$ 10</td>
<td>1.4</td>
</tr>
<tr>
<td>Accounts payable</td>
<td>10</td>
<td>1.4</td>
<td>20</td>
<td>2.0</td>
</tr>
<tr>
<td>Notes payable</td>
<td>40</td>
<td></td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Long-term debt</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common stock</td>
<td>40</td>
<td>1.4</td>
<td>40</td>
<td>1.4</td>
</tr>
<tr>
<td>Retained earnings</td>
<td>10</td>
<td></td>
<td>20</td>
<td>2.0</td>
</tr>
<tr>
<td>Total liabilities &amp; equity</td>
<td>120</td>
<td>1.4</td>
<td>120</td>
<td>1.4</td>
</tr>
</tbody>
</table>

Fixed assets were used at 90 percent of capacity last year; sales for the year just ended were $200; sales will increase $20 per year for the next 4 years; the profit margin is 5 percent; and the dividend payout ratio is 60 percent. Assume that fixed assets cannot be sold.

a. Show calculations (other than the balance sheet) below:

\[
\begin{align*}
\text{Year} & \quad \text{Sales} & \quad \text{NI} & \quad \text{Net Cash} & \quad \text{Increase in Sales} \\
1 & \quad 220 \times 0.5 & \quad 11 & \times 1.4 & \quad 1.4 \\
2 & \quad 240 \times 0.5 & \quad 12 & \times 1.4 & \quad 1.4 \\
3 & \quad 260 \times 0.5 & \quad 13 & \times 1.4 & \quad 1.4 \\
4 & \quad 280 \times 0.5 & \quad 14 & \times 1.4 & \quad 1.4 \\
\end{align*}
\]

\[
\frac{280}{200} = 1.4 \quad (\text{40% increase in sales})
\]

b. What are the total external financing requirements for the entire 4 years, i.e., the total AFN for the 4-year period?

\[
\begin{align*}
15 & \times 1.4 \\
-144.0 & \\
\hline
11.4 & \text{AFN}
\end{align*}
\]
6. (2 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

7. (2 points) The income statement line item that shows the performance of operating activities without consideration of financing is
   a. Net Income
   b. EBIT
   c. EBIT
   d. Total Assets

8. (2 points) Which of the following does not appear on the right hand side of the balance sheet?
   a. Current Liabilities
   b. Accounts Receivable
   c. Retained Earnings
   d. Long-Term Debt
   e. Total Equity

9. (2 points) Accounting accruals are important in
   a. accounting for depreciation
   b. providing for unpaid payroll, rent, interest, and other expenses that relate to the current accounting period
   c. drawing checks on the last day of the current accounting period to properly reflect expense in that period
   d. providing for bad debts that may eventually be deemed uncollectible

10. (2 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 (show your work):
    
    $700
    
    + 130
    
    = 830
    
    a. $830
    b. $840
    c. $850
    d. $870

11. (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
12. (2 points) The following items are components of a firm’s balance sheet. How much is the firm’s working capital (net working capital)? Show work below:

\[ \text{NWC} = \text{CA} - \text{CL} \]

<table>
<thead>
<tr>
<th>Item</th>
<th>CA</th>
<th>CL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>2,000</td>
<td></td>
</tr>
<tr>
<td>Long-term debt</td>
<td>10,000</td>
<td>8,000</td>
</tr>
<tr>
<td>Inventory</td>
<td>12,000</td>
<td>15,000</td>
</tr>
<tr>
<td>Owners' equity</td>
<td>62,000</td>
<td>9,000</td>
</tr>
<tr>
<td>Accounts payable</td>
<td>8,000</td>
<td></td>
</tr>
<tr>
<td>Accruals</td>
<td>1,500</td>
<td></td>
</tr>
<tr>
<td>Accumulated depreciation</td>
<td>6,000</td>
<td></td>
</tr>
<tr>
<td>Accounts receivable</td>
<td>14,000</td>
<td></td>
</tr>
<tr>
<td>a. $14,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. $2,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. $18,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. $12,500</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

13. (3 points) The following items are components of a traditional balance sheet. How much is the total equity of the firm? Show work below:

<table>
<thead>
<tr>
<th>Item</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Long-term debt</td>
<td>12,000</td>
<td>15,000</td>
</tr>
<tr>
<td>Common stock</td>
<td>15,000</td>
<td>16,000</td>
</tr>
<tr>
<td>Accounts payable</td>
<td>8,000</td>
<td>28,000</td>
</tr>
<tr>
<td>Paid in excess</td>
<td>6,000</td>
<td>4,000</td>
</tr>
<tr>
<td>Accrued interest payable</td>
<td>1,500</td>
<td></td>
</tr>
<tr>
<td>Plant and equipment</td>
<td>60,000</td>
<td></td>
</tr>
<tr>
<td>Retained earnings</td>
<td>28,000</td>
<td></td>
</tr>
<tr>
<td>Accounts receivable</td>
<td>22,000</td>
<td></td>
</tr>
<tr>
<td>a. $62,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. $49,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. $93,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. $97,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

14. (4 points) Selected financial statement accounts are as follows. How much is the firm’s ending equity? Show work below:

<table>
<thead>
<tr>
<th>Item</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Income for the year</td>
<td>25,000</td>
<td>54,000</td>
</tr>
<tr>
<td>Dividends paid</td>
<td>6,000</td>
<td>12,000</td>
</tr>
<tr>
<td>Beginning equity for the year</td>
<td>56,000</td>
<td>19,000</td>
</tr>
<tr>
<td>Additional stock sold</td>
<td>22,000</td>
<td></td>
</tr>
<tr>
<td>a. $103,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. $97,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. $19,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. $85,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ \text{RE} = 19,000 \]
15. (3 points) Williamson Trucking has current sales of $10,000 and a cost of goods sold of $4,300. Williamson has projected sales to increase 50% and expects the new cost ratio to decrease by 2% due to increased efficiency. Assuming that Williamson wants to maintain an inventory turnover of 5.0, calculate their projected level of inventory (round to the nearest $). Show your work:

\[
\frac{4,300}{10,000} = 43\% \quad ; \quad 43\% \cdot 2\% = 4\%
\]

\[
\text{Projected Sales} = 15,000 \quad \text{Projected COGS} = 15,000 \cdot 4\% = 600
\]

\[
\frac{15,000 + 600}{i} \quad \text{INV} = 800 \quad ; \quad \text{INV} = \frac{600}{800} = 12,800
\]

a. $1,230
b. $1,920
c. $2,180
d. $2,340

16. (3 points) CVD, Inc. has an equity multiplier of 2. What is CVD’s stockholders’ equity if total debt is $100,000? Show your work:

\[
\frac{A}{E} = 2 \quad ; \quad 2 = \frac{E + LE}{E} \Rightarrow 2 = 1 + \frac{100,000}{E}
\]

\[
1 = \frac{100,000}{E} \Rightarrow E = 100,000
\]

a. $100,000
b. $150,000
c. $200,000
d. $300,000

17. (4 points) How much cash does Gray Computer Co. have if the firm has a current ratio of 2.5, a quick ratio of 1.2, and current liabilities of $12,000? Gray’s credit sales are $98,000 and its average collection period is 40 days. (Assume 365 days per year.) Show your work:

\[
\begin{align*}
\text{CA} & = 30,000 - 12,000 = 30000 \quad \Rightarrow \quad \text{CA} = 2.5 \times 12000 = 30000 \\
\text{30,000} - \text{INV} & = 1.2 \rightarrow \quad \text{30000} - \text{INV} = 14400 \Rightarrow \text{INV} = 15,600
\end{align*}
\]

a. $3,660
b. $14,440
c. $10,740
d. None of the above

18. (4 points) What is the market price per share of Whoopie, Inc. if the firm had net income of $200,000, earnings per share of $2.70, total equity of $800,000, and a market to book value ratio of 1.5? Show your work:

\[
\begin{align*}
\frac{2.70}{\#\text{Shares}} & = \frac{200,000}{\#\text{Shares}} \Rightarrow \#\text{Shares} = \frac{200,000}{2.70} = 74,074
\end{align*}
\]

\[
\text{Book} = \frac{800,000}{74,074} = 10.86
\]

\[
\text{Market} = 1.5 \times 10.86 = 16.29
\]

a. $16.20
b. $10.30
c. $7.20
d. None of the above
19. (2 points) A 30-year corporate bond pays a higher interest rate than a 30-year federal government bond. This is due to a higher ________ premium on the corporate bond.

a. inflation
b. default Risk
c. maturity Risk
d. both a & b
e. all of the above

20. (2 points) The yield curve is:

○ inverted when short-term rates are higher than long-term rates.
○ normal when it slopes upward to the right.
○ a plot of interest rates versus term, also called the term structure of interest rates.
□ all of the above

21. (4 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?

1 yr debt: \( K_r = 9\% + 5\% = 14\% \)

2 yr debt: \( 11\% = 4.5\% + \frac{5\% + MRP_2}{2} \Rightarrow MRP_2 = 1\% \)

b. Forecast the nominal yield on one- and two-year government debt issued at the beginning of the second year.

\( K_1 = 11\% + 7\% = 18\% \)

\( K_2 = 11\% + 1\% = 12\% \)

22. (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 = 2.8%
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

Show your work:

\[
K_8 = K_{nr} + \frac{\text{IRP} + \text{DRP} + \text{LRP}}{8}
\]

\[
= 2.8\% + \frac{0 + 0 + 0}{8} = 2.8\%
\]

\[
= 8.7\%
\]