A- Multiple Choice Questions (50 %)

1	**B**
2	**C**
3	**B**
4	**D**
5	**D**
6	**B**
7	**C**
8	**A**
9	**D**
10	**C**

11	**C**
12	**D**
13	**B**
14	**A**
15	**C**
16	**C**
17	**C**
18	**D**
19	**B**
20	**C**

B- Problem Solving

Problem # 1 (20 %)

a. Calculate the Break-Even sales in units and in dollars.

Break-even point in units: $\frac{\$30,000}{\$8-\$5} = 10,000 \text{ units}$

Break-even point in dollars = 10,000units X $8 = $80,000

b. Calculate the margin of safety at the 12,000 unit level.

Margin of Safety = $\frac{12,000 \text{ units} - 10,000 \text{ units}}{12,000 \text{ units}} = 16.7\%$

c. Find the net income when sales are $120,000

Sales	$ 120,000
Variable costs	75,000 (15,000units @$5)
CM	$ 45,000
Fixed costs	30,000
Net income	$ 15,000

d. Compute the sales in units required to produce a net income of $10,000

Target income volume = $\frac{\$30,000+\$10,000}{\$8-\$5} = 13,333 \text{ units}$

e. Compute the sales in units required to produce a net income of 10% of sales

Target income volume = $\frac{\$30,000}{\$8-\$5-(10\%)(\$8)} = \frac{\$30,000}{\$2.2} = 13,636 \text{ units}$

f. Find the break-even in units if variable costs are increased by $1 Per unit and if total fixed costs are decreased by $5,000.

Break-even in units = $\frac{\$25,000}{\$8-\$6} = 12,500$ units

Problem #2 (14%)

Payback period:

Recovery of the initial outlay				
Year	Cash Flow	Needed	Balance	Payback period in Years
1	$10,000	$31,000	$21,000	1.00
2	$20,000	$21,000	$1,000	1.00
3	$10,000	1,000	--	0.10
				2.1

Net Present Value (NPV):

Year	Cash Flow	PV Factor at 14%	PV
0	$(31,000)	1.000	$(31,000)
1	10,000	0.877	8,770
2	20,000	0.769	15,380
3	10,000	0.675	6,750
4	10,000	0.592	5,920
5	5,000	0.519	2,595
Net Present Value (NPV)			$8,415

2. Under the NPY method, since the NPV is a positive $8,415, Accept.

Problem #3 (16 %)

1. Return on total assets:

Return on total assets = $\frac{\text{Net income} + [\text{Interest expenses} \times (1 - \text{Tax rate})]}{\text{Average total assets}}$

$= \frac{\$672 + [\$0 \times (1 - 0.36)]}{(\$5,344 + \$4,429) / 2} =$ = 13.8% (rounded)

2. Return on common stockholders' equity:

Return on a common stockholders' equity = $\frac{\text{Net income} - \text{Preferred dividends}}{\text{Average common stockholders' equity}}$

$= \frac{\$672 - \$0}{(\$2,284 + \$2,228) / 2} = 29.8\%$ (rounded)

3. Current ratio:

Current ratio = $\frac{\text{Current assets}}{\text{Current liabilities}} = \frac{\$1,696}{\$2,156} = 0.79$ (rounded)

4. Acid-test ratio:

Acid-test ratio = $\frac{\text{Cash + Marketable securities + Accounts receivable + Short−term notes receivable}}{\text{Current liabilities}}$

$= \frac{\$281 + \$157 + \$288 + \$0}{\$2,156} = 0.34$ (rounded)

5. Inventory turnover:

Inventory turnover = $\frac{\text{Cost of goods sold}}{\text{Average inventory balance}}$

$= \frac{\$3,999}{(\$692 + \$636) / 2} = 6.02$ (rounded)

6. Average sale period:

Average sale period = $\frac{365 \text{ days}}{\text{Inventory turnover}}$

$= \frac{365 \text{ days}}{6.02} = 61$ days (rounded)

7. Debt-to-equity ratio:

Debt-to-equity ratio = $\frac{\text{Total liabilities}}{\text{Stockholders' equity}}$

$= \frac{\$2,156 + \$904}{\$2,284} = 1.34$ (rounded)

GOOD WORK!