

RYERSON UNIVERSITY
SCHOOL OF BUSINESS MANAGEMENT
ACC 406
INTRODUCTORY MANAGEMENT ACCOUNTING
TEST
WINTER 2006

INSTRUCTIONS TO STUDENTS:

1. This test consists of 6 questions (12 pages).
2. Marks total 76.
3. All questions must be answered on this paper in the spaces following the questions. Pages are not to be separated and all pages must be submitted without exception.
4. Calculator (model Royal XE24) may be used.
5. No textbooks or notes may be used.
6. DO NOT USE RED PEN ON ANY OF THESE PAGES.

INSTRUCTOR: Professor Anthony Chan

Student Name: _____

Signature: _____

Student Number: _____

Question 1 (14 marks)

Nike and Reebok both plan to introduce a new sports shoe using a revolutionary new leather product. Nike plans to use a heavily automated production process to produce its shoes while Reebok plans to use a labour-intensive production process. The following revenue and cost relationships are provided:

	<u>Nike Shoes</u>	<u>Reebok Shoes</u>
Variable Unit Data:		
Selling price	\$100.00	\$100.00
Direct materials	\$18.00	\$18.00
Direct labour	\$5.00	\$20.00
Overhead	\$5.00	\$20.00
Selling and Admin	\$2.00	\$2.00
Annual Fixed Costs:		
Overhead	\$400,000	\$160,000
Selling and Admin	\$90,000	\$90,000

Required:

- (1) Compute the contribution margin per unit for each company.
- (2) Assuming each company sells 8,800 pairs of shoes, compute each firm's net income.
- (3) Which firm will have more stable profits when sales change? Why?

Ans: (1) Contribution margin per unit:

	<u>Nike Shoes</u>	<u>Reebok Shoes</u>
Revenue	\$100	\$100
Less variable costs:		
DM	\$18	\$18
DL	5	20
OH	5	20
S&A	<u>2</u>	<u>2</u>
Total variable costs	<u>30</u>	<u>60</u>
Contribution margin	\$70	\$ 40

(2) Net income = (unit sales x unit contribution margin) – fixed costs:

Total CM	(8,800 x \$70) \$616,000	(8,800 x \$40) \$352,000
Less fixed costs	<u>490,000</u>	<u>250,000</u>
Net income	\$126,000	\$102,000

- (3) The lower the fixed costs, the more stable will be net income. Since Reebok has approximately half the fixed costs of Nike, its earnings should be more stable. Note also that Reebok's unit contribution margin is considerably less than Nike's. As sales rise, Nike will gain contribution margin (and thus profit) faster than Reebok and of course when sales fall will lose contribution margin faster than Reebok.

Question 2 (17 marks)

On January 31, 2006, Phile Company had an accidental fire. As a result, some accounting RECORDS about direct materials, work-in-process, and finished goods inventories were destroyed. The company did have access to certain incomplete accounting records, which revealed the following:

1. Beginning inventories, January 1, 2006:
Direct materials \$32,000
Work-in-process \$68,000
Finished Goods \$30,000
2. Key ratios for the month of January 2006:
Gross profit = 20% of sales
Prime costs = 70% of total manufacturing costs added
Factory overhead = 40% of conversion costs
Ending work-in-process is always 10% of the total manufacturing costs added
3. All costs are incurred uniformly in the manufacturing process.
4. Actual operations data for the month of January 2006:
Sales \$900,000
Direct materials purchases \$320,000
Direct labour incurred \$360,000

Required:

1. From the above data, reconstruct a statement of cost of goods manufactured for January 2006.
2. Calculate the ending finished goods inventory value on January 31, 2006.

Answers:

1. Beginning Materials Inventory	\$32,000
Purchases	<u>\$320,000</u>
Materials Available for Use	\$352,000
Less: Ending Materials Inventory	<u>\$152,000</u>
Materials Used	\$200,000
Direct Labour	\$360,000
Overhead	<u>\$240,000</u>
Total Manufacturing Costs Added	\$800,000
Beginning Work-in-process	<u>\$68,000</u>
Total Manufacturing Costs	\$868,000
Less: Ending Work-in-process	<u>\$80,000</u>
Cost of Goods Manufactured	\$788,000

Question 2 (cont.)

2. Beginning Finished Goods Inventory	\$30,000
Cost of Goods Manufactured	<u>788,000</u>
Goods Available for Sale	818,000
Less: Ending Finished Goods Inventory	<u>90,000</u>
Cost of Goods Sold	720,000

Question 3 (15 marks)

The Buffet Company produces and sells t-shirts. Income statements for two activity levels are provided below:

Volume (units)	20,000	30,000
Revenue	\$300,000	\$450,000
Cost of goods sold	\$120,000	\$180,000
Gross margin	\$180,000	\$270,000
Operating expenses:		
Salaries and commissions	\$40,000	\$ 50,000
Advertising expenses	\$60,000	\$ 60,000
Administrative expenses	\$25,000	\$ 25,000
Total operating expenses	\$125,000	\$135,000
Net income	\$55,000	\$ 135,000

Required:

- (1) Identify the mixed expense item.
- (2) Use the high-low method to separate the mixed expense into variable and fixed cost components.
- (3) Prepare an income statement at the 20,000-unit level under variable costing.

Ans:

- (1) The salaries and commissions cost is mixed.
- (2) The variable cost per unit: $(\$50,000 - \$40,000) / (30,000 - 20,000) = \1 per unit

The total fixed cost = $\$50,000 - (30,000 \times 1) = \$20,000$

- (3) Income statement under variable costing (volume 20,000 units):

Revenue	\$300,000
Less variable costs:	
Cost of goods sold	120,000
Salaries and commissions	<u>\$ 20,000</u>
Total variable costs	<u>\$140,000</u>
Contribution margin	\$160,000
Less fixed costs:	
Salaries and commissions	\$ 20,000
Advertising expenses	\$ 60,000
Administrative expenses	\$ 25,000
Total fixed costs	<u>\$105,000</u>
Net income	\$ 55,000

Question 4 (5 marks)

Describe the basic differences between absorption and variable costing. Why are managers sometimes motivated to overproduce when income is computed under an absorption costing system?

Ans:

Under absorption costing the unit manufacturing cost includes both variable manufacturing costs (direct material, direct labour, and variable overhead) and fixed costs (fixed overhead).

Under variable costing the unit manufacturing cost includes only the variable manufacturing costs.

Thus, the basic difference between the two approaches lies in their treatment of fixed overhead in inventory: absorption costing includes fixed overhead in inventory while variable costing expenses all fixed costs in the period incurred.

Thus, as production increases, under absorption costing, total expenses will be lower.

Since managers cannot control sales, they may be motivated to increase profitability by increasing production. However, increased inventory levels lead to risks of obsolescence, damage, and other inventory holding costs.

Question 5 (15 marks)

Sumner Company produces and sells a product that has variable costs of \$30 and a selling price of \$45. Its current sales total \$101,250 per month. Fixed manufacturing costs total \$12,000 per month and fixed selling and administrative costs total \$15,000 per month. The company is considering a proposal that will increase the selling price by 10%, decrease the fixed manufacturing costs by 10%, and decrease the fixed selling and administrative costs by \$800.

Required:

- (1) Compute the company's break-even point in units before the proposal is accepted.
- (2) Compute the company's income and margin of safety in dollars before the proposal is accepted.
- (3) Compute the break-even point in units assuming the proposal is accepted.
- (4) Compute the company's income assuming the proposal is accepted and sales total 3,000 units. Should the proposal be accepted to maximize income?

Ans: (1) Current break-even point = $\$27,000 / (\$45 - \$30) = 1,800$ units.
(2) Current income and margin of safety:
Net income = $(\$101,250 / \$45) \times \$15 - (\$12,000 + \$15,000) = \$33,750 - \$27,000 =$
 $\$6,750$

Margin of safety = $\$101,250 - (1,800 \times \$45) = \$101,250 - \$81,000 = \$20,250$

- (3) New break-even point:

New selling price = $\$45 \times 1.1 = \49.50 ;
New fixed manufacturing costs = $\$12,000 \times .9 = \$10,800$;
New fixed S&A costs = $\$14,200$;
New total fixed costs = $(\$10,800 + \$14,200) = \$25,000$;
New contribution margin per unit = $\$49.50 - \$30 = \$19.50$;
Break-even point = $\$25,000 / \$19.50 = 1,282$ units

- (4) Income under the proposal = $(3,000 \times \$19.50) - \$25,000 = \$58,500 -$
 $\$25,000 =$
 $\$33,500$

Since income will increase from \$6,750 to \$33,500, the proposal should be accepted.

Question 6 (10 marks)

Higgins Company sales are \$225,000. The company has variable costs equal to 80% of sales and total fixed costs of \$30,000.

Required:

- (1) What is the company's break-even point in dollars?
- (2) Compute the company's operating leverage at its current sales level.
- (3) Compute the percentage change in income that will accompany a 10% increase in sales.
- (4) Compute the company's net income and operating leverage (rounded to one decimal place) if sales increase by 10%.

Ans: (1) Break-even point = $\$30,000 / (100\% - 80\%) = \$150,000$

(2) Operating leverage: contribution margin / income.

Contribution margin = $\$225,000 \times 0.2 = \$45,000$;

Net income = $\$45,000 - \$30,000 = \$15,000$;

Operating leverage = $\$45,000 / \$15,000 = 3$

(2) Percentage change in income accompanying a 10% increase in sales
= $10\% \times 3 = 30\%$

(4) Net income and operating leverage when sales increase by 10%:

Net income = $(\$225,000 + 22,500) \times 0.2 - \$30,000 = \$19,500$;

Operating leverage = $\$49,500 / \$19,500 = 2.5$