



**Q.1 (4)** Lee Company manufactured and sold 1,000 sabers during November. Selected data for November follow:

Sales	\$100,000
Variable manufacturing expenses	50,000
Fixed manufacturing overhead	14,000
Variable selling and administrative expenses	?
Fixed selling and administrative expenses	?
Contribution margin	40,000
Operating income	22,000

**There were no beginning or ending inventories.**

**Required:**

1. What were the variable selling and administrative expenses for November?
2. What were the fixed selling and administrative expenses for November?

Sales		\$100,000
Variable manufacturing expenses		50,000
Variable selling and administrative expenses		<u>10,000<sup>1</sup>?</u>
Contribution margin		40,000
Fixed manufacturing overhead		14,000
Fixed selling and administrative expenses		4,000 <sup>2</sup> ?
Operating income		22,000

<sup>1</sup> Plug ,  $100,000 - 50,000 - 40,000 = \$10,000$ , (2) .....

<sup>2</sup> Plug ,  $40,000 - 14,000 - 22,000 = \$4,000$  (2) .....

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**Q.2 (6)** Gamma Corporation has the following income statement for a recent period:

Sales	\$400,000
Less: Variable Expenses	<u>260,000</u>
Contribution Margin	140,000
Less: Fixed Costs	<u>50,000</u>
Income	\$ 90,000

**Required:** The following two parts are independent

**1.(2)** Using the **concept of operating leverage**, if Gamma's sales increase by 20%, calculate the new net income.

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O/L =  $\$140,000/90,000 = 1.5555$

Sales up by 20%, Income up by  $20\% * 1.555 = 31.11\%$

New Income =  $\$90,000 + .3111 * 90,000 = \$117,990$  (2)

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**2(4).** The sales manager believes that a \$20,000 reduction in advertising will lead to a 10% decrease in sales. Should the advertising cut be done?

New CM =  $\$140,000 - .10 * 140,000 = 126,000$  (2)

New FC =  $50,000 - 20,000 = 30,000$

New Income =  $96,000(126,000 - 30,000)$

So better of by 6,000

(2)

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Or,

Change in CM =  $- 10\% * 140,000 = -14,000$  .....

Change in FC =  $-20,000$

Change in Income =  $- 14,000 - (- 20,000) = +6,000$

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**Q.3 (20)** Soo Office Equipment manufactures and sells metal shelving. It began operations on January 1, 2009. Costs incurred for 2009 are as follows (V stands for variable; F stands for fixed):

Direct materials used costs	\$140,000 V
Direct manufacturing labour costs	30,000 V
Plant energy costs	5,000 V
Indirect manufacturing labour costs	10,000 V
Indirect manufacturing labour costs	16,000 F
Other indirect manufacturing costs	8,000 V
Other indirect manufacturing costs	24,000 F
Marketing, distribution, and customer-service costs	122,850 V
Marketing, distribution, and customer-service costs	40,000 F
Administrative costs	50,000 F

Inventory data are as follows:

	<b>Beginning January 1, 2009</b>	<b>Ending, December 31, 2009</b>
Direct materials	0 kilograms	0 kilograms
Work in process	0 units	0 units
Finished goods	0 units	? units

Production in 2009: 100,000 units. Sales in 2009: 98,000 units.

**Required**

1. Calculate finished goods inventory, total costs, December 31, 2009.
2. What would **total manufacturing costs incurred** and **cost of goods manufactured** be in 2010 if production was 110,000 units? Assume no beginning or ending WIP inventories.

	2009 (100,000 units)	Per unit or Fixed	2010 110,000 units
Direct materials used costs	\$140,000	\$1.40	\$154,000
Direct manufacturing labour costs	30,000	.30	33,000
VMOH Plant energy costs	5,000	.05	5,500
Indirect manufacturing labour costs	10,000	.10	11,000
Other indirect manufacturing costs	8,000	.08	8,800
FMOH Indirect manufacturing labour costs	16,000	16,000	16,000
Other indirect manufacturing costs	24,000	24,000	24,000
Manufacturing Costs Incurred	233,000*		\$252,300***
WIP(BB)	0		0
WIP(EB)	0		0
COGM	\$233,000*(8)		\$252,300(8)
FG(BB)	0		
FG(EB)	\$4,760** (4)		

Cost per unit =  $\$233,000 / 100,000 = \$2.33$

FG(EB) Units =  $100,000 - 98,000 = 2,000$

FG(EB) \$s =  $2,000 * \$2.33 = \$4,660$

\*\*\* Or VC =  $140,000 + 30,000 + 5,000 + 10,000 + 8,000 = 193,000$ , or \$1.93 per unit

Cost in 2010 =  $110,000 * \$1.93 + 40,000 = 252,300$



**Q.4 (6)** Lynn Company uses a job costing system at its Mississauga plant. The plant applies overhead based on machine hours. At the beginning of 2009, the plant forecast that annual overhead would be \$1,500,000 and machine hours would be 48,000.

**Required**

The actual costs and hours were

Direct materials used	\$340,000
Direct manufacturing labour cost	\$875,000
Manufacturing overhead	\$1,605,000
Machine hours	49,200

The company adjusts any over or under allocated overhead to cost of goods sold. The cost of goods sold before adjustment was \$2,960,000.

**Required:**

1. Determine the overallocated or underallocated manufacturing overhead.
2. Determine the cost of goods sold after adjustment.

Predetermined Overhead Rate  $\$1,500,000/48,000 = \$31.25$

Applied =  $49,200 * \$31.25 = \$1,537,500$  (3)

Actual =  $\$1,605,000$

Underapplied =  $\$1,537,500 - 1,605,000 = \$67,500$

COGS(Adjusted) =  $\$2,960,000 + 67,500 = \$3,027,500$ . (3)

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**Q. 6 (10)**

**6.1(4)** The Vancouver Hotel has 400 rooms, with a fixed cost of \$400,000 per month during the peak season. Room rates average \$124 per day with variable costs of \$24 per room per day. Assume a 30-day month.

**Required:**

How many rooms must be occupied per month in the peak season to make a profit of \$200,000 per month?

$$CM = \$124 - 24 = \$100 \text{ (2)}$$

$$\text{So target sales} = (\$400,000 + 200,000/100 = 6,000 \text{ rooms (2).....}$$

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**6.2.(6)** Assume again The Vancouver Hotel has 400 rooms, with a fixed cost of \$400,000 per month during the peak season; however the hotel averages 80 percent occupancy per day.

**Required:** What average rate per day must the hotel charge to make a profit of \$200,000 per month?(Hint: How many rooms are occupied?)

$$\text{Total rooms} = 400 * 30 = 12,000$$

$$\text{Occupancy} = 80\% * 12,000 = 9,600 \text{ rooms (2)}$$

$$\text{Sales} = (FC + \text{Target profit})/CM \text{ per unit}$$

$$9,600 * CM \text{ per unit} = \$400,000 + 200,000$$

$$CM \text{ per unit} = 600,000/9,600 = \$62.50 \text{ (4)}$$

$$SP = VC + CM = 24 + 62.50 = \$86.50$$

**Or**

$$\text{Revenue} - \text{Variable cost} - \text{Fixed Cost} = \text{Profit}$$

$$SP * \text{Rooms} - VC * \text{Rooms} - FC = \$200,000$$

$$SP * 9,600 - \$24 * 9600 - \$400,000 = \$200,000$$

$$SP * 9600 = 230,400 + 400,000 + 200,000 = \$830,400$$

$$SP = \$830,400/9600 = \$86.50$$

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**Q.7 (15)** The Frozen Delicacies Company specializes in preparing tasty main courses that are frozen and shipped to the finer restaurants in the Montreal area. When a diner orders the item, the restaurant heats and serves it. The budget data for 2010 are:

	<b>PRODUCT</b>	
	<b>Chicken Cordon Bleu</b>	<b>Veal Marsala</b>
Selling price to restaurants	\$10	\$14
Variable Expenses	\$6	\$8
<b>CM per unit</b>	<b>\$4</b>	<b>\$6</b>
Number of units	250,000	125,000

The items are prepared in the same kitchens, delivered in the same trucks, and so forth. Therefore the fixed costs of \$840,000 are unaffected by the specific products.

**Required:**

1. Compute the break-even point in units – show the sales of each product - assuming that the planned sales mix is maintained.
2. Suppose 90,000 units of veal and 270,000 units of chicken were sold. Compute the new break-even point – show the sales of each product - if these relationships persisted in 2010.
3. Discuss briefly the reason for the difference in break- even point between parts 1 and 2 of this question.

**Rounded numbers are fine.....**

1. Average CM per unit

$$(250k/375k)*\$4 + (125k/375k)*\$6$$

$$.66667*\$4 + .3333*\$6 = \$4.66667$$

Or

$$\text{Total CM} = 250k*\$4 + 125k*\$6 = 1,000k + 750k = 1,750k$$

$$\text{Average CM} = 1,750k/375k = \$4.66667 \text{ (3) } .....$$

$$\text{BEP} = \$840k/4.6667 = 180k \text{ (2)}$$

$$\text{Chick} = .66667 * 180k = 120k$$

$$\text{Veal} = .3333*180k = 60k \text{ (2)}$$

2. New Average CM per unit

$$270k/360*\$4 + 90/360*\$6$$

$$.75*\$4 + .25*\$6 = \$4.50 \text{ (3)}$$

$$\text{BEP} = \$840k/4.5 = 186,667 \text{ rounded up (1)}$$

$$\text{Chick: } .75* 186,667 = 140,000$$

$$\text{Veal: } .25*186,667 = 46,667 \text{ (1) } .....$$

3. BEP is down because of the sales shift to Chicken, the lower CM product - from 67% of sales to 75% . This decreased the average CM from \$4.67 to 4.50 – increasing the BEP (3)

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