

CMA June, 2020 Examination
Professional Level – II
Subject: 202. Management Accounting

Model Solution

Solution of the Q. No. 1

(b) Cost driver.

A cost driver is any factor whose change causes a change in the total cost of a related cost object. The cost drivers for business function as per question are given below:

| Business functions: | Cost Drivers: |
|---|--|
| (i) Research and Development | - Number of research projects - personnel hours on a project -Technical complexities of the project |
| (ii) design of products, services and process | -Number of products in design -Number of parts per product -Number of engineering hours |
| (iii) Marketing | -Number of advertisements run -Number of sales personnel -Sales revenue -Number of product sale -Volume of sales |
| (iv) Distribution | -Number of items distributed -Number of customers -Weight of items distributed |
| (v) Customer service | -Number of service call -Number of products serviced -Hours spent in servicing of products |

(c) Req. 1)

| | April | May | June |
|---|-----------------|----------------|----------------|
| Sales | \$1500,000 | \$1625,000 | \$1750,000 |
| Less Variable expenses: | | | |
| Variable mfg. expenses @ \$6 P/U | 360,000 | 390,000 | 420,000 |
| Variable selling & admin. Exp. @ \$9 P/U | 540,000 | 585,000 | 6,30,000 |
| Total VC | 900,000 | 975,000 | 1050,000 |
| Contribution Margin | 600,000 | 650,000 | 700,000 |
| Less FC: | | | |
| Fixed mfg. O/H | *560,000 | 560,000 | 560,000 |
| Fixed selling & admin. O/H | **80,000 | 80,000 | 80,000 |
| Total FC | <u>640,000</u> | <u>640,000</u> | <u>640,000</u> |
| Net operating income (loss) | <u>(40,000)</u> | <u>10,000</u> | <u>60,000</u> |

*\$1680,000 /3 months = \$560,000 per month

** Fixed selling and administrative expenses (from April's figures):

\$620,000 – (60,000 units x \$ 9 P/U) = \$ 80,000

Req. 2) Reconciliation Statement

| | April | May | June |
|------------------------------------|----------|----------|----------|
| Variable costing net income (loss) | (40,000) | \$10,000 | \$60,000 |
| Add. Fixed manufacturing O/H | | | |

| | | | |
|--|----------|--------|-----------|
| Deferred in inventory at the end of April (15,000 units x \$ 8 P/U) | 120,000 | | |
| Add. Fixed manufacturing O/H Deferred in inventory at the end of May (5,000 units x \$ 8 P/U) | 40,000 | | |
| Less. Fixed manufacturing O/H Released from inventory at the end of June (20,000 units x \$ 8 P/U) | | | (160,000) |
| Absorption costing Net Income (loss) | \$80,000 | 50,000 | (100,000) |

Req. 3) Under JIT, production is geared strictly to sales. Therefore, the company would have produced only enough units during June to meet sales needs beyond the inventory of units on hand at the start of the month. The computation is as follows:

| | |
|--------------------------------------|---------------|
| Units sold during June | 70,000 |
| Less inventory at the beginning | <u>25,000</u> |
| Units produced during June under JIT | <u>45,000</u> |

Solution of the Q. No. 2 (c)

(i) Statement showing the impact of different transfer prices on divisional profits:

(a) Transfer price ` 80

| Division X | Division Y | For the Company |
|---|--|---|
| Tk. Budgeted profit on this price = 25,00,000 | Tk. Sales (1,00,000 × 80) 80,00,000 Variable Cost (1,00,000 × 76) <u>76,00,000</u> Profit 4,00,000 | Tk. X Division profit 25,00,000 Y Division profit <u>4,00,000</u> Profit of the Co. 29,00,000 |

(b) Transfer price ` 88

| Division X | Division Y | For the Company |
|---|---|---|
| Tk. Budgeted profit on this price = 25,00,000 Less: Additional Cost. (1,00,000 × 8) <u>8,00,000</u> Profit of X 17,00,000 | Tk. Sales (1,00,000 × 88) 88,00,000 Variable Cost (1,00,000 × 76) <u>76,00,000</u> Profit 12,00,000 | Tk. X Division 17,00,000 Y Division <u>12,00,000</u> Profit of the Co. 29,00,000 |

(c) Transfer price ` 95

| Division X | Division Y | For the Company |
|--|--|--|
| Tk. Budgeted profit on this price = 25,00,000 Less: Additional Cost 1,00,000 × (95-80) = 15 <u>15,00,000</u> Profit of X 10,00,000 | Tk. Sales (1,00,000 × 95) 95,00,000 Variable Cost. (1,00,000 × 76) <u>76,00,000</u> Profit 19,00,000 | Tk. X Division 10,00,000 Y Division <u>19,00,000</u> Profit of the Co 29,00,000 |

The total variable cost of producing one box of Zippo pens is:

| | |
|--------------------------------------|-------------|
| Direct materials..... | \$1.50 |
| Direct labor..... | 1.00 |
| Variable manufacturing overhead..... | <u>0.30</u> |
| Total variable cost per box | <u>2.80</u> |

If the cartridges for the Zippo pens are purchased from the outside supplier, then the variable cost per box of Zippo pens would be:

| | |
|---|---------------|
| Direct materials (\$1.50 x 80%) | \$1.20 |
| Direct labor (\$1.00 x 90%)..... | 0.90 |
| Variable manufacturing overhead (\$0.30 x 90%)..... | 0.27 |
| Purchase of cartridges..... | <u>0.48</u> |
| Total variable cost per box | <u>\$2.85</u> |

The company should reject the outside supplier's offer. Producing the cartridges internally costs \$0.05 less per box of pens than purchasing them from the supplier.

Alternatively

Cost avoided by purchasing the cartridges:

| | |
|---|----------------|
| Direct materials (\$1.50 x 20%)..... | \$0.30 |
| Direct labor (\$1.00 x 10%)..... | 0.10 |
| Variable manufacturing overhead (\$0.30 x 10%)..... | <u>0.03</u> |
| Total costs avoided..... | <u>\$ 0.43</u> |

Cost of purchasing the cartridges..... \$0.48

Cost savings per box by making cartridges internally.... \$0.05

Note that the avoidable cost of \$0.43 above represents the cost of making one box of cartridges internally.

Req. (ii) The company would not want to pay any more than \$0.43 per box, since it can make the cartridges for this amount internally.

Req. (iii) The company has three alternatives for obtaining the necessary cartridges. It can:

- # 1 Produce all cartridges internally.
- # 2 Purchase all cartridges externally.
- # 3 Produce 100,000 boxes internally and purchase 50,000 boxes externally.

The costs under the three alternatives are:

Alternative #1-Produce all cartridges internally:

| | |
|--|-----------------|
| Variable costs (150,000 boxes x \$0.43 per box)..... | \$64,500 |
| Fixed costs of adding capacity..... | <u>30 000</u> |
| Total cost | <u>\$94,500</u> |

Alternative #2-Purchase all cartridges externally:

Variable costs (150,000 boxes x \$0.48 per box)..... \$72,000

Alternative #3-Produce 100,000 boxes internally, and purchase 50,000 boxes externally:

| | |
|---|-----------------|
| Variable costs: 100,000 boxes x \$0.43 per box..... | \$43,000 |
| 50,000 boxes x \$0.48 per box | <u>24,000</u> |
| Total cost..... | <u>\$67,000</u> |

Thus, the company should accept the outside supplier's offer, but only for 50,000 boxes of cartridges.

Req. (iv) In addition to cost considerations, Bronson should take into account the following factors:

- a) The ability of the supplier to meet required delivery schedules.
- b) The quality of the cartridges purchased from the supplier.
- c) Alternative uses of the capacity that is used to make the cartridges.
- d) The ability of the supplier to supply cartridges if volume increases in future years.
- e) The problem of alternative sources of supply if the supplier proves undependable.

Solution of the Q. No. 4(c)

Statement showing standard prime cost of 100 liters of each product:

| Materials | ABC Limited | | | |
|---|--------------|-------------------|------------|-------------------|
| | Floor Polish | | Car Polish | |
| | Tk. | | Tk. | |
| Delta @ Tk.1/liter *120, 1*100 | 120 | | 100 | |
| Gamma @ Tk.8/kg*20, 8*10 | <u>160</u> | | <u>80</u> | |
| | 280 | | 180 | |
| Container cost for 100 liters | 100 | | 100 | |
| Direct Labor: | | | | |
| Manufacturing @ T.k.6/hour *12 hrs, 6*16 hrs | 72 | | 96 | |
| Primary packing @Tk. 4/hour *5hrs both | 20 | <u>92</u> | 20 | <u>116</u> |
| Standard Prime Cost | | <u>472</u> | | <u>396</u> |
| Per liter prime cost: 472/100, 396/100 | | 4.72 | | 3.96 |

ii. Sales and Production Budgets (in liters) for the six months to 30th September

| | Floor Polish | Car Polish |
|---------------------|---------------|---------------|
| Sales (liters) | 15,000 | 25,000 |
| Add: Closing Stock | 3,000 | <u>4,000</u> |
| Total | 18,000 | 29,000 |
| Less: Opening stock | 2,000 | <u>3,000</u> |
| Production | <u>16,000</u> | <u>26,000</u> |

iii. Statement showing profit forecast for the period:

| | Floor Polish | Car Polish | Total |
|--------------------------------------|-----------------|---------------|----------------------|
| Quantity produced | 16,000 lts. | 26,000 lts. | |
| Quantity sold | 15,000 lts. | 25,000 lts. | |
| | Tk. | Tk. | Tk. |
| Sales value (15000*Tk.9, 25000*Tk.7) | 1,35,000 | 1,75,000 | 3,10,000 |
| Less: Prime Cost (W.N. 1) | <u>70,800</u> | <u>99,000</u> | <u>1,69,800</u> |
| Gross margin | 64,200 | 76,000 | 1,40,200 |
| Less: Overheads: | | | |
| Manufacturing | 50,800 (W.N. 2) | | |
| Packing | 30,000 (W.N. 3) | | |
| Administration | <u>37,000</u> | | |
| | | | <u>1,17,800</u> |
| Net profit for the period | | | <u>22,400</u> |

Working Notes:

1. Floor Polish 15,000 × Tk.4.72 = Tk. 70,800
Car Polish 25,000 × Tk.3.96 = Tk.99,000

2. Overheads for manufacturing

Manhours required:

Floor polish = (12 hrs. ÷ 100 liters) × 16,000

Car polish = (16 hrs. ÷ 100 liters) × 26,000

1,920 hrs.

4,160 hrs.

6,080 hrs.

Overheads for 6,000 hrs. (given)

50,000

Overheads for next 80 hrs. [(60,000 – 50,000) ÷ (7,000 – 6,000)] × 80

800

Overheads of manufacturing department

50,800

| | |
|---|--------------|
| 3. Overheads for primary packing man hours required | |
| Floor Polish (5 hrs. ÷ 100 liters) x 16,000 = | 800 |
| Car Polish (5 hrs. ÷ 100 liters) x 26,000 = | <u>1,300</u> |
| | <u>2,100</u> |
| Overheads for 2,100 hrs. (Packing) | 30,000 |

Note: As given in the question, no overheads are included in stock valuation.

Solution of the Q. No. 5(b)

Req. (1) Sales= Variable expenses + Fixed expenses + Profits

$$\$2.00Q = \$0.80Q + \$60,000 + \$0$$

$$\$1.20Q = \$60,000$$

$$Q = \$60,000 / 1.2 \text{ per pair}$$

$$Q = 50,000 \text{ Pairs}$$

$$50,000 \text{ pairs} \times \$2 \text{ per pair} = \$100,000 \text{ in sales}$$

Req. (2). Sales= Variable expenses + Fixed expenses + Profits

$$\$2.00Q = \$0.80Q + \$60,000 + \$9,000$$

$$\$1.20Q = \$69,000$$

$$Q = \$69,000 / \$1.20 \text{ per pair}$$

$$Q = 57,500 \text{ pairs}$$

Req. (3). Incremental contribution margin:

$$\$20,000 \text{ increased sales} \times 60\% \text{ CM ratio} \dots\dots\dots \$12,000$$

$$\text{Less incremental fixed salary cost} \dots\dots\dots \underline{8,000}$$

$$\text{Increased net operating income} \dots\dots\dots \underline{\underline{\$4,000}}$$

Yes, the position should be converted to a full time basis.

Req. (4). a. Degree of operating leverage:

$$\text{Contribution margin} / \text{Net operating income} = \$75,000 / \$15,000 = 5$$

(b) $5 \times 20\%$ sales increase = 100% increase in net operating income. Thus, net operating income would double next year, going from \$15,000 to \$30,000.

= THE END =