Written Exam for the B.Sc. or M.Sc. in Economics summer 2015

Managerial Accounting

Guiding Solutions

22. June 2015

(3-hour open/closed book exam)

Exercise 1:

Q1.

Schedule of Cost of Goods Manufactured in DKK.

Direct materials:		
Raw materials inventory, beginning	180.000	
Add: Purchases of raw materials	2.500.000	
Raw materials available for use	2.680.000	
Deduct: Raw materials inventory, ending	120.000	
Raw materials used in production		2.560.000
Direct labour		1.400.000
Manufacturing overhead:		
Depreciation, factory	540.000	
Utilities, factory	160.000	
Maintenance, factory	800.000	
Supplies, factory	220.000	
Insurance, factory	80.000	
Indirect labour	300.000	
Total overhead costs		2.100.000
Total manufacturing costs		6.060.000
Add: Work in process inventory, beginning		340.000
		6.400.000
Deduct: Work in process inventory, ending		600.000
Cost of goods manufactured		5.800.000

Q2.

Statement of operating profit or loss account

Sales		10.000.000
Cost of goods sold:		
Finished goods inventory, beginning	400.000	
Add: Cost of goods manufactured	5.800.000	
Goods available for sale	6.200.000	
Deduct: Finished goods inventory, ending	800.000	5.400.000
Gross margin		4.600.000
Less operating expenses:		
Selling expenses	1.600.000	
Administrative costs	2.200.000	3.800.000
Operating profit		800.000

Q3.

Direct materials: 2.560.000DKK ÷ 10.000 units = 256 DKK per unit.
Factory Depreciation: 540,000DKK ÷ 10.000 units = 54DKK per unit.

Q4.

Direct materials:

Unit cost: 256DKK
Total cost: 15.000 units × 256DKK per unit = 3.840.000DKK.

Factory Depreciation:

Unit cost: 540.000DKK ÷ 15.000 units = 36DKK per unit.
Total cost: £27,000 (unchanged)

Q5.

Unit cost for depreciation changed from 54DKK to 36DKK, because of the increase in production between the two years. Since fixed costs do not change in total as the activity level changes, they will decrease on a unit basis as the activity level

Exercise 2:

Q1.

The CM in DKK is:

	Total	**Per Unit**	**Percent of Sales**
Sales (19,500 units)	11.700.000	600	100 %
Less variable expenses	8.190.000	420	70
Contribution margin	3.510.000	180	30 %

The break-even point is:

Sales = Variable expenses + Fixed expenses + Profits
600Q = 420Q + 3.600.000 + £0
180Q = 3.600.000
Q = 20.000 units

20.000 units × 600 = 12.000.000 in sales.

Q2.

Incremental contribution margin:

1.600.000 increased sales × 30% CM ratio	480.000
Less increased advertising cost	320.000
Increase in monthly operating profit	160.000

The company is now showing a loss of 90.000 DKK per month. If the changes are adopted, the loss will turn into a profit of 70.000 DKK each month.

Q3.

Sales (39,000 units x 540DKK)	21.060.000
Less variable expenses (39,000 units x 420DKK)	16.380.000
Contribution margin	4.680.000
Less fixed expenses (3.600.000DKK + 1.200.000DKK)	4.800.000
Net loss	(120.000)

Q4.

Sales	=	Variable expenses + Fixed expenses + Profits
600Q	=	435Q + 3.600.000 + 195.000
165Q	=	3.795.000
Q	=	3.795.000 ÷ 165
Q	=	23,000 units

Exercise 3:

Q1.

From the standpoint of the selling division A:

$$\text{Transfer price} \geq \frac{\text{Variable cost}}{\text{per unit}} + \frac{\text{Total contribution margin on lost sales}}{\text{Number of units transferred}}.$$

The minimum transfer price is (36-5) + ((60-36)x5.000)/5.000 = 31+24=55

From the standpoint of the purchasing division B:

Division B won't pay more than 54 and Alpha Division will not accept less than 55, so the deal is not possible. There will be no transfer.

Q2a.

From the standpoint of the selling division A:

$$\text{Transfer price} \geq \frac{\text{Variable cost}}{\text{per unit}} + \frac{\text{Total contribution margin on lost sales}}{\text{Number of units transferred}}.$$

The minimum transfer price is (130-10) + ((180-130)x30.000)/30.000 = 120+50=170

From the standpoint of the purchasing division B:

Transfer price equal or less than buying from outside supplier = 178DKK

In this instance, an agreement is possible within the range between 170DKK and 178DKK:

Even though both managers would be better off with any transfer price within this range, they may disagree about the exact amount of the transfer price. It would not be surprising to hear the purchasing division arguing for 170DKK while the selling division argues for 178DKK.

Q2b.

The potential loss of profits to the company as a whole will in DKK be:

Division B outside purchase price	178
Alpha Division's variable cost on the internal transfer	170
Potential added contribution margin lost to the company as a whole	8
Number of units	30.000
Potential added contribution margin and company profits forgone	240,000

Q3a.

From the standpoint of the selling division A:

$$\text{Transfer price} \geq \begin{matrix}\text{Variable cost} \\ \text{per unit}\end{matrix} + \frac{\text{Total contribution margin on lost sales}}{\text{Number of units transferred}}$$

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The minimum transfer price is (80) + (0/20.000) = 80DKK

From the standpoint of the purchasing division B:

Transfer price should be equal or less than cost from outside supplier =
150 – (0,08 x 150) = 138DKK

In this case, an agreement is possible within the range between 80DKK and 138DKK.

If the managers understand what they are doing and are cooperative, they should be able to come to an agreement with a transfer price within this range.

Q3b.

Division A ROI should increase. Since the division has idle capacity, there should be little or no increase needed in the division's operating assets as a result of selling 20.000 units a year to Beta Division. Therefore, Alpha Division's asset turnover should increase. The division's margin earned on sales should also increase, since its contribution margin will increase by 800.000DKK as a result of the new sales, with no increase in fixed costs:

Selling price	120
Less variable costs	80
Contribution margin per unit	40
Number of units	20.000
Added contribution margin	800.000

Thus, with both the margin and the turnover increasing, the division's ROI would also increase.

Q4.

The purpose of the question is to test the students understanding of the purposes, contents, strengths and weaknesses. It is the depth of their understanding that is decisive for how well they answer this question.