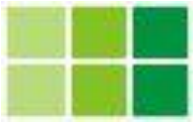

Institute of Incorporated Public Accountants

Institute of Incorporated Public Accountants

Advanced Management Accounting

Module 13

May 2014

Solutions

Instructions: **Answer five questions**

You must answer the three questions in Section A

Answer any two questions from Section B

All questions carry equal marks

Time Allowed: **3 Hours**

Section A - Compulsory Answer all three questions

Question 1

(a) .

Answer Question 1 (a)

Preliminary Semi- variable marketing costs- high low approach

	2nd Quarter	3rd Quarter	Increase
Sales units	45,000 u	57,000 u	12,000 u
Semi Variable Marketing costs	€585,000	€681,000	€96,000

Thus variable sales marketing costs per unit is €8.00 ie. €96,000/12,000u
Fixed marketing costs are €585,000 minus [45,000u x€8.00] equals €225,000

TAC	Unit Price	2nd Quarter	3rd Quarter	4th Quarter	
Production		50,000 u	55,000 u	60,000 u	165,000 u
Sales		45,000 u	57,000 u	63,000 u	165,000 u
Sales	€95	€4,275,000	€5,415,000	€5,985,000	€15,675,000
Production					
Opening stock at full cost	€124	€0	€620,000	€372,000	€0
Variable production cost	€44	€2,200,000	€2,420,000	€2,640,000	€7,260,000
Fixed Production O/H	€80	€4,000,000	€4,400,000	€4,800,000	€13,200,000
less closing stock	€124	(€620,000)	(€372,000)	€0	€0
Cost of goods sold		€5,580,000	€7,068,000	€7,812,000	€20,460,000
under/overabsorption	€80	€400,000	€0	(€400,000)	€0
Marketing variable costs	€8	€360,000	€456,000	€504,000	€1,320,000
Marketing fixed costs		€225,000	€225,000	€225,000	€675,000
		€6,565,000	€7,749,000	€8,141,000	€22,455,000

Net Loss under TAC	(€2,290,000)	(€2,334,000)	(€2,156,000)	(€6,780,000)

Answer Question 1 (b)

Production		50,000 u	55,000 u	60,000 u	
Sales		45,000 u	57,000 u	63,000 u	
b) Variable Costing Format		2nd Quarter	3rd Quarter	4th Quarter	
Sales	€95	€4,275,000	€5,415,000	€5,985,000	€15,675,000
Opening stock	€44	€0	€220,000	€132,000	€0
Variable production cost	€44	€2,200,000	€2,420,000	€2,640,000	€7,260,000
Closing stock at VC	€44	(€220,000)	(€132,000)	€0	€0
V Cost of goods sold		€1,980,000	€2,508,000	€2,772,000	€7,260,000
Variable Marketing costs	€8	€360,000	€456,000	€504,000	€1,320,000
Total variable costs	€52	€2,340,000	€2,964,000	€3,276,000	€8,580,000
Contribution		**€1,935,000**	**€2,451,000**	**€2,709,000**	€7,095,000
Total fixed costs		(€4,400,000)	(€4,400,000)	(€4,400,000)	(€13,200,000)
Total fixed Marketing costs		(€225,000)	(€225,000)	(€225,000)	(€675,000)
Net Loss under MC		(€2,690,000)	(€2,174,000)	(€1,916,000)	(€6,780,000)

Note the fact that there is a projected overall net loss does not change the principles involved ie. the treatment of fixed production costs. Fixed production costs are included in production and thus in inventories under the TAC method. Under M.C. they are treated as a "period cost" with inventory value at variable production cost only. The treatment of non production costs viz marketing is the same under both methods.
Of course in any commentary the projected loss would need to be referred to.

Answer (c)

		Qtr 2	Qtr 3	Qtr 4	Total
Difference in profits/(losses)		€400,000	(€160,000)	(€240,000)	€0
Opening inventory in units		0 u	5,000 u	3,000 u	0 u
Closing inventory in units		5,000 u	3,000 u	0 u	0 u
		5,000 u	(2,000 u)	(3,000 u)	0 u
Fixed overhead rate	€80.00	€400,000	(€160,000)	(€240,000)	€0

Question 2

The research director and the marketing director have come back with the following projections.

Sales price		**Units**
€80.00		**93,000 u**
€85.00		**83,000 u**
€90.00		**73,000 u**
€95.00		**63,000 u**

Marginal costs per unit are estimated at €52.00

(a) Computing the profits under the sales directors suggestion
€80.00 minus €52.00 equals contribution of €28.00
Total contribution is €28.00 x 93,000 units equals €2,604,000

Existing contribution
€95.00 minus €52 equals contribution of €43.00
Total contribution is €43.00 x 63,000 equals €2,709,000

Since both scenarios are assumed to have the same fixed costs then it would appear that the director's suggestion would leave the company with a reduced contribution of €105,000. This would represent the minimum difference since if the 93,000 units were outside the relevant range then assumptions about fixed costs remaining unchanged may not hold.

(b) Using the above information calculate the optimum sales price in order to maximise profits and state the total contribution and the total net profit at that price for a quarter.

Optimum price is where marginal costs equals marginal revenue

Assuming a linear approach
Price equals A minus b x Q

Where A equals the sales price at which no units sold
B equals factor to be applied to a particular quantity

b change factor equals $\frac{\text{change in SP}}{\text{change in quantity}}$ $\frac{€5}{10{,}000u}$ =.0005

A equals €95 plus [€5 x [63,000u/10,000u] equals €126.50

Thus sale price per unit equals 126.5 minus .0005 Q

Total revenue equals Sale price per unit x total quantity Q

equals 126.50 Q minus $.0005Q^2$

Differentiating $\frac{DR}{DQ}$ equals 126.50 minus .0010Q

MC equals MR thus 126.50 minus .0010Q equals €52

.0001Q equals 126.50 minus €52.00
Q equals 74.50/.0001 equals 74,500 units

Sales price is 126.50 minus .0005 x 74,500u
Equals 126.50 minus 37.25
Thus price is €89.25

Contribution is thus

74,500 units x [S.P. €89.25-M.C.€52.00] equals	€2,775,125
Less fixed costs Production and Marketing	(€4,625,000)
Net loss	(€ 1,849,875)

Summarising

	Original Proposal	**Director' Proposal**	**Optimum price**
Sales price per unit	€ 95.00	€80.00	€ 89.25
Marginal costs	(€ 52.00)	(€52.00)	(€ 52.00)
Contribution per unit	€ 43.00	€ 28.00	€ 37.25
Units sold	63,000 u	93,000	74,500
Total contribution	€2,709,000	€2,604,000	€2,775,125

The only relevant comparative is the contribution since the fixed costs in all three scenarios is assumed to remain unchanged. However as indicated already there is an overall net loss after fixed costs in all three scenarios.

Question 2-along the following lines

(c) Set out limitations in the optimal pricing and comment on the result obtained above in (a) and (b)

As this may considered a new product there may be no hard data with which to develop or forecast trends in sales in relation to changes in price. Optimal pricing theory tends to apply to aggregate demand ie at industry level rather than for a specific product of a particular firm.

There may be other factors other than sales price that may affect demand as for example the vulnerability of losing or having stolen all one's data by losing the memory pen. Thus sales price may not capture all the factors behind rises and falls in demand.

Marginal costs can generally only be determined after considerable analyses. The increase in sales volume form 63,000 unit per 4th quarter to say 74,500 units represents about18% increase in volume. The capacity may not exist to meet such a target or it may trigger increases in variable costs such labour overtime etc
As this is a first time product it makes it even more difficult to be sure of precise marginal costing amounts as there may be learning curve factors to be included as cumulative output doubles.

It assumes that competition will not affect its sales price as rivals set out to produce a better and cheaper alternative.

Question 3

		2nd Quarter	3rd Quarter	4th Quarter	Total
Sales units		45,000 u	57,000 u	63,000 u	165,000 u
Production Units		50,000 u	55,000 u	60,000 u	165,000 u
Revenues/Sales	€95	€4,275,000	€5,415,000	€5,985,000	€15,675,000
Opening balance	30 days	0	€1,425,000	€1,805,000	0
Closing balance	30 days	(€1,425,000)	(€1,805,000)	(€1,995,000)	(€1,995,000)
Cash inflows from revenues	(a)	€2,850,000	€5,035,000	€5,795,000	€13,680,000
Fixed costs excl. depreciation	(b)	(€4,320,000)	(€4,320,000)	(€4,320,000)	(€12,960,000)
Total other costs(i)		(€2,785,000)	(€3,101,000)	(€3,369,000)	(€9,255,000)
Opening balances		€0	(€1,083,056)	(€1,205,944)	€0
Closing balance	35 days	€1,083,056	€1,205,944	€1,310,167	€1,310,167

	(c)	(€3,171,944)	(€2,263,111)	(€1,789,778)	(€7,224,833)
Net Cash flow (a)+(b) + (c)		(€4,641,944)	(€1,548,111)	(€314,778)	(€6,504,833)
Opening cash balance		(€900,000)	(€5,541,944)	(€7,090,056)	(€900,000)
Closing cash balances		(€5,541,944)	(€7,090,056)	(€7,404,833)	(€7,404,833)
Note total other costs(ii)					
Variable production costs	€44	€2,200,000	€2,420,000	€2,640,000	€7,260,000
Variable marketing costs	€8	€360,000	€456,000	€504,000	€1,320,000
Fixed Marketing costs		€225,000	€225,000	€225,000	€675,000
		€2,785,000	€3,101,000	€3,369,000	€9,255,000

Note the quarter end balance for other costs are the Total €costs x 35/90 days

Comment

The contribution is €43 [€95 SP minus €44 VC+€8 marketing] Thus it would require sales of approximately 107,000 units [€4,625,000/€43] to break even which is beyond the ranges suggested. The projected cash balances of between €5.5m and €7.4m overdrawn make any improvement to collection times or negotiation with suppliers of secondary importance. The fixed costs are the single biggest projected amount and unless on review these are found to be significantly incorrectly estimated then it is recommended to cease trading immediately .

Projected balance sheets at the end of each quarter NOT ASKED FOR

	2nd Quarter	3rd Quarter	4th Quarter	Total
Non Current assets				
Opening balance	€3,400,000	€3,400,000	€3,400,000	€3,400,000
Accum depreciation	(€80,000)	(€160,000)	(€240,000)	(€240,000)

	Closing balance	€3,320,000	€3,240,000	€3,160,000	€3,160,000

Units--------→	**10,000 u**	**20,000 u**	**40,000 u**	**50,000 u**	**120,000 u**
	Current Assets				
	Inventory	€620,000	€372,000	€0	€0
	Receivables	€1,425,000	€1,805,000	€1,995,000	€1,995,000
	Cash balance	€0	€0	€0	€0
		€2,045,000	€2,177,000	€1,995,000	€1,995,000
	Total Assets	**€5,365,000**	**€5,417,000**	**€5,155,000**	**€5,155,000**
	Share Capital	€2,800,000	€2,800,000	€2,800,000	€2,800,000
	Profit/ loss brought fwd	(€300,000)	(€2,590,000)	(€4,924,000)	(€300,000)
	Profit for the year	(€2,290,000)	(€2,334,000)	(€2,156,000)	(€6,780,000)
	Total Equity	€210,000	(€2,124,000)	(€4,280,000)	(€4,280,000)
	Non Current Liabilities	€0	€0	€0	€0
	Current Liabilities				
	Payables				
	V.C suppliers	€855,556	€941,111	€1,026,667	€1,026,667
	V.C. Marketing owing	€140,000	€177,333	€196,000	€196,000
	F.C Marketing owing	€87,500	€87,500	€87,500	€87,500
	Total payables	€1,083,056	€1,205,944	€1,310,167	€1,310,167
	Bank overdrawn	€4,071,944	€6,335,056	€8,124,833	€8,124,833
	Total C .Liabilities	€5,155,000	€7,541,000	€9,435,000	€9,435,000
	Equity + Liabilities	**€5,365,000**	**€5,417,000**	**€5,155,000**	**€5,155,000**

Question 4 solutions

(a) 4 marks- Contribution of each product and total net profit

	Super	**De Luxe**	**Standard**	**Basic**	**Total**
Contribution p.u.	€22.00	€15.00	€10.00	€5.00	
Sales	€1,180,000	€1,900,000	€2,960,000	€2,650,000	€8,690,000
Units	(€960,000)	(€1,600,000)	(€2,560,000)	(€2,400,000)	(€7,520,000)
equals contribution	**€220,000**	**€300,000**	**€400,000**	**€250,000**	**€1,170,000**
Less Fixed costs					€800,000
Net Profit					€370,000

b)

Avg Contribution p/.unit	€1,170,000	divided by	120,000 u	equals	€9.75
B/e Units	Fixed Costs	€800,000	equals	82,051 u	
	Wt C/U	€9.75			

	Super	**De Luxe**	**Standard**	**Basic**	
Standard proportions	8%	17%	33%	42%	
B/E in units by product	6,838 u	13,675 u	27,350 u	34,188 u	82,051 u
	x by	x by	x by	x by	
Selling price p./unit.	€118.00	€95.00	€74.00	€53.00	
	equals	equals	equals	equals	
B/Even in revenue	€806,838	€1,299,145	€2,023,932	€1,811,966	€5,941,880

Alternatively	Total contribution		€1,170,000	equals	13.46%
	Total sales		€8,690,000		
	B/E revenue	Fixed costs	€800,000	equals>	€5,941,880
		C/S ratio	13.46%		

Question 4

c)

Labour cost per hour is	€ 14.00				
	10,000 u Super	20,000 u De Luxe	40,000 u Standard	50,000 u Basic	
Contribution p/unit.	€22.00	€15.00	€10.00	€5.00	
Labour Hours p/u	3.00	2.50	2.00	1.50	
Contrib/labour hour	€7.33	€6.00	€5.00	€3.33	
Rank	1st	2nd	3rd	4th	
Hours need for budget	30,000	50,000	80,000	75,000	235,000
Allocate	30,000	50,000	80,000	25,000	185,000
Units	10,000 u	20,000 u	40,000 u	16,667 u	
Total Contribution	€220,000	€300,000	€400,000	€83,333	€1,003,333
Less Fixed costs					€800,000
Profit					€203,333

d)

	Basic	
		4.00
Sales price per unit	€53.00	
Existing variable cost per unit	(€48.00)	
Contribution per unit	€5.00	0.50
Units shortfall	33,333 u	0.50
Total additional Contribution	€166,667	0.50
Less additional fixed cost flat	(€80,000)	0.50

	fee		
	Extra net profit	€86,667	0.50
	Net profit per unit of extra units	€3.33	0.50
	Percentage "add on" to VC	6.94%	1.00

		Cork division Currently	**`+%=**	**Cork division Projection**
20%	of Group Sales equals Cork see notes	€2,000,000	8%	€2,160,000
	Variable costs "balancing amount"	(€870,000)	8%	(€939,600)
	Fixed production costs per question	(€650,000)	4%	(€676,000)
24%	Gross profit 60% of 40% of Group GP	€480,000		€544,400
		==========		==========
		Reanalysed between FC& V.C		**Reanalysed between FC &V.C.**
	Sales/ Revenues	€2,000,000	8%	€2,160,000
	less variable costs	(€870,000)	8%	(€939,600)
	Equals **Contribution [has to increase by 8%]**	€1,130,000	8%	€1,220,400
	Less Fixed Production Costs per Qn	(€650,000)	4%	(€676,000)
	Gross profit as per above 24%of sales	€480,000		€544,400
	*Other expenses excluding €120,000	(€280,000)	4%	(€291,200)
		€200,000		€253,200
	Contribution from other divisions			€30,000
	Total Projected Net Profit-->			€283,200
	German Bond accumulated total			€250,000
	Reject because a net loss in decision			€33,200

Notes

(i) €10,000,000 Murphy Group sales x 20% [note 1 of Qn] equals €2,000,000

(ii) Gross Profit of Murphy group is €4,000,000/€10,000,000 =40%

(iii) Cork division is 40% x 60% [Note 3 of Qn] equals 24%

(iv) Cost of sales of Cork Group are thus €2,000,000 x 76% [100%-24%]=€1,520,000

(v) Cork fixed production costs of €650,000[Note 2 of Qn] then the balancing amount for variable costs is €1,520,000 -€650,000 equals €870,000

(b)

Morale of remaining staff, possible redundancy cost not included, accuracy of forecast, time scale forward of twelve months possibly long enough, alternative use of division

Question 5

Answer (c) requires a slight rearranging of data presented in answer (a)

(c) Sale of cork division would yield	€250,000
But would lose contribution of	(€ 30,000)
Net contribution from sales	€220,000
Costs over the next twelve months saved by sale of division	
Fixed production costs –see above	€676,000
Fixed Marketing costs –see above	€291,200
Total contribution by sale of division	€1,187,200
(i)Projected contribution for cork division	€1,220,400
(ii)Difference in outcomes is again the same as (a) above i.e	€ 33,200

Note the amounts (i) and (ii) included were not necessary for answering (c) but were included to demonstrate how the information presented in (a) can be slightly rearranged to get the same answer as shown above.

Thus answering (c) start with the total contribution earned by selling the division i.e €1,187,200
But existing contribution from the division is €1,130,000 . Thus increase in contribution to make no difference is [€1,187,200 -1,130,000]/€1,130,000 equals 5.06% Thus sales would have to grow in the division by 5.07%

Question 6

Four purposes of delegation-along the following lines

(i) To allow the board to concentrate on the long term significant strategic issues facing the company
(ii) To enable those closest to the activities to act in sufficient time to exploit opportunities, or resolve problems arising
(iii) To provide a testing ground for future board members
(iv) To ensure divisions are run at maximum efficiency by maintaining an external customer relationship with other divisions
(v) To measure performance and return on investment on individual divisions and compare with alternative opportunities for the same funds or to sub contract out its activities.

[2] **Explain what is meant by dysfunctional decision making**

Dysfunctional decision making is where two divisional managers seeking to maximise division returns do so at the expense of the company optimising its profits. For example if division A has spare capacity so that the units it produces could be transferred as raw materials to Division B at a marginal cost of say €10 but the division A manager insist on a transfer price of say €11.50. As a consequence if Division B manager goes to the market to buy them at say €11 thereby saving €.50 per unit but the company overall pays €1.00 more than necessary then there is a sub-optimisation of the overall company's profits

[3**] Comment on how demotivation might occur**

Demotivation occurs when the discretion of a divisional manager is interfered with so that targets set for them in term of divisional profit are not met and consequently the reward arising from same will not be realised. It can also lead to unspoken charges of favouritism in relation to the division in favour of whom the decision is made. Once the practice becomes common it may lead to preparing reports for the board that avoid mentioning problems or difficulties in order to restore favour with the board and possible future promotion to it.

A culture will then develop of a lack of frankness that will eventually affect the board itself as divisional heads are promoted to it.

[4] **Outline disadvantages of transfer price of Total actual cost +mark up**

(i) It provides no incentive for the selling division to be efficient since it will always make a profit on transfer because its profit is marked up on the actual costs.

(ii) It creates an unpredictable factor in planning for the Buying division since costs will change with actual change in the costs of the selling division and thus transfer price.

(iii) It may justify the buying division seeking to purchase on the external market when with proper efficiencies by the selling division the transfer price would match the external market. This will result in sub-optimisation of the company profits.

(iv) Where the selling division has spare capacity then actual marginal cost would preferable to actual total cost.

[5]**Four other methods of transfer pricing**

	Actual	Standard
Variable Cost	Y	Y
Total Cost	Y	Y
Variable cost plus mark-up	Y	Y
Total Cost plus mark-up	Y	Y
Market price	N/A	N/A
Negotiated		
Imposed by Head office		