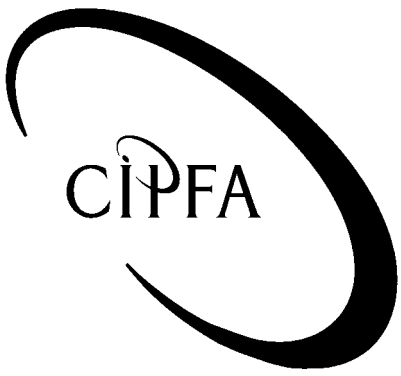
MANAGEMENT ACCOUNTING

Certificate stage
December 2004

MARKING SCHEME



Question 1

(a) There is not enough Rantrip to meet all of the demand. *1*

Contribution per litre for each medicine are as follows:

	Medicine A £	Medicine B £	Medicine C £	Medicine D £	
Selling price per unit	22.50	27.00	21.00	33.00	
Less					
Direct materials	6.00	7.50	4.50	12.00	
Direct labour	4.50	3.00	1.50	6.00	
Variable overhead	3.00	4.50	1.50	6.00	
Total cost	13.50	15.00	7.50	24.00	*2*
Contribution	9.00	12.00	13.50	9.00	*1*
Litres of Rantrip req per unit	4.50	3.00	2.25	6.00	
Contribution per unit of scarce resource	2.00	4.00	6.00	1.50	*1*
Ranking	3	2	1	4	*1*

The monthly production plan should therefore be as follows:

Product	Units	Litres of Rantrip	Balance of Rantrip	
Medicine C	45,000	101,250	198,750	
Medicine B	37,500	112,500	86,250	
Medicine A	15,000	67,500	18,750	
Medicine D	3,125	18,750	None	*2*

This would maximise contribution. *(8)*

(b)

(i) Change in annual profit if the South Division were closed:

Cost savings:

Materials	No savings as product is a joint product of the North Division	*1*
Labour	6,600	*1*
Directly attributable overhead	6,900	*1*
Central overheads	Nil	*1*
Total	13,500	
Lost revenue	21,750	
Reduction in profit	8,250	*1*
		(5)

(ii) The profit that would be made per litre from extra sales of Fromean:

Marginal cost of the North Division

The full marginal cost of materials from the North Division should be charged as product Z is produced as a by-product of Y, and this output cannot be sold.

	£ per litre	
£10,800,000/300,000 litres	36.00	*1*
Labour cost of South Division		
£6,600,000/300,000 litres	22.00	*1*
Marginal cost	58.00	
Revenue		
£21,750,000/300,000 litres	72.50	*1*
Additional profit	£14.50 per litre	*1*
		(4)

(c) Non financial considerations are:

- Effect of the redundancies in the South division having an adverse affect on morale throughout the company.
- Loss of customer goodwill.
- Effect of not having the geographical presence in the South of the country.

1 mark per relevant point to a maximum of 3

(20)

Question 2

(a) Analysis of semi variable costs into their fixed and variable elements.

Method A

$$\frac{\text{Change in costs}}{\text{Change in activity}} = \frac{18{,}000}{200{,}000} = £0.09 \text{ variable cost per copy.}$$

Fixed element therefore £0.09 x 600,000 = £54,000 - £96,000 = £42,000 fixed. *1*

Method B

$$\frac{\text{Change in costs}}{\text{Change in activity}} = \frac{9{,}000}{200{,}000} = £0.045 \text{ variable cost per copy.}$$

Fixed element therefore £0.045 x 600,000 = £27,000 - £83,000 = £56,000 fixed. *1*

Contribution per copy of the new magazine

	Method A £	Method B £
Selling price	1.75	1.75
Variable cost	0.95	0.88
Variable element of semi-variable cost	0.09	0.045
Contribution	0.71	0.825

2

Increase in company profits

Method A

Copies sold	750,000	700,000	900,000
Contribution per copy	0.71	0.71	0.71
Total contribution	532,500	497,000	639,000
Lost contribution 750,000/20 x (1.20 – 0.85)	13,125	12,250	15,750
Fixed costs	140,000	140,000	140,000
Specific fixed costs	42,000	42,000	42,000
Profit	337,375	302,750	441,250

2

Method B

Copies sold	750,000	700,000	900,000
Contribution per copy	0.825	0.825	0.825
Total contribution	618,750	577,500	742,500
Lost contribution	13,125	12,250	15,750
Fixed costs	210,000	210,000	210,000
Specific fixed costs	56,000	56,000	56,000
Profit	339,625	299,250	460,750

2
(8)

(b) Calculation of the breakeven point:

Breakeven point = $\frac{\text{Fixed costs}}{\text{Contribution per unit}}$

Average loss of contribution per copy sold $\frac{0.35}{20} = 0.0175$

Method A = $\frac{£182,000}{(0.71 - 0.0175)}$ = 262,816 copies *1*

Method B = $\frac{£266,000}{(0.825 - 0.0175)}$ = 329,412 copies *1*

Margin of safety

Method A

$\frac{\text{Anticipated sales – Breakeven sales}}{\text{Anticipated sales}} \times 100 = \frac{750,000–262,816}{750,000} = \frac{487,184}{750,000} \times 100$

= 64.96%

1

Method B

$\frac{\text{Anticipated sales – Breakeven sales}}{\text{Anticipated sales}} \times 100 = \frac{750,000–329,412}{750,000} = \frac{420,588}{750,000} \times 100$

= 56.08% *1*

(4)

(c)

- Method B has a higher breakeven point than method A. This means that the profits using this method are more sensitive to a decline in sales volume.

- The margin of safety for Method A is higher than that of Method B illustrating this.

- When the number of copies sold is high, Method B gives higher levels of profit. However, if sales volume drops below 750,000, the profits from Method A are greater then those of Method B.

- The breakeven point from sales of existing magazines is:

£140,000 = 400,000 copies
1.20-0.85

This means that if 750,000 copies of the new magazine were sold then 37,500 (750,000/20) copies of the old magazine would be lost. This would not mean a loss for the company from copies of the old magazine.

442,000 copies – 37,500 = 404,500 (above the breakeven point, old magazine still makes a profit).

This leaves 4,500 (404,500 – 400,000) copies margin of safety.

At the 750,000 sales level another (4,500 x 20 =) 90,000 copies of the new magazine can be sold before a loss is made on the old magazine.

Therefore sales of the new magazine in excess of 840,000 copies will result in the viability of the old magazine having to be reviewed. *(5)*

(d) Assumptions:

- The sales revenue function is linear.
- Total cost function is linear.
- Fixed costs remain fixed throughout the relevant range.
- Production is equal to sales volume.
- Stocks are excluded from the analysis.
- There is a single product/constant mix of products.
- Only quantitative effects are included, non financial considerations are not included in the decision making process.
- Deterministic model
- Static environment

1 mark per relevant point to a maximum of 3

(20)

Question 3

(a)

	£
Variable production cost per unit	98.00
Total production marginal cost	98.00
Non production variable cost (15% of sales price)	42.00
Production absorption cost per Ratchet	138.00
Fixed costs for the period (£40 x 32,000) (or £640,000 per 6 month period)	1,280,000

3

(i) Profit statements using Absorption costing

	Profit ending 30/6/04 £000		**Period ending 1/12/04 £000**
Opening stock	-	(3,000 x £138)	414
Production cost (17,000 x £138)	2,346	(14,000 x £138)	1,932
Less closing stock (3,000 x £138)	(414)	(1,000 X £138)	(138)
	1,932		2,208
Under (over) recovery of fixed overheads (£40 x 1,000)	(40)	(2,000 x £40)	80
	1,892		2,288
Variable non production costs (£42 x 14,000)	588	(£42 x 16,000)	672
Fixed non production costs	180		180
	2,660		3,140
Sales revenue (14,000 x £280)	3,920	(16,000 x £280)	4,480
Profit	1,260		1,340

4

(ii) Profit statements using Marginal costing

	Period ending 30/6/04 £000		Period ending 1/12/04 £000
Opening stock	-	(3,000 x £98)	294
Production cost (17,000 x £98)	1,666	(14,000 x £98)	1,372
Less closing stock (3,000 x £98)	(294)	(1,000 x £98)	(98)
	1,372		1,568
Variable non production costs (£42 x 14,000)	588	(£42 x 16,000)	672
	1,960		2,240
Sales revenue	3,920		4,480
Contribution	1,960		2,240
Fixed costs (180 + 640)	820		820
Profit	1,140		1,420

4
(11)

(b) Statement to reconcile the profits using alternative costing methods:

	Period ending 30/6/04 £000		Period ending 1/12/04 £000
Marginal costing profits	1,140		1,420
Fixed production overhead Absorbed in increases or (decreases) in closing stock (£40 x 3,000)	120	(£40 x 2,000)	(80)
Profit using absorption costing	1,260		1,340

(3)

(c)

- Absorption costing must be used for stock valuation according to SSAP 9 in published accounts.
- Marginal costing distinguishes between fixed and variable costs and therefore for decision making purposes, allows managers to focus on those costs that will change as a result of a decision. Many fixed costs will not change and as such should not influence the decision making process.
- If absorption costing were to be used in order to make decisions there is a danger that the incorrect decision may result because fixed overhead absorption rates treat fixed costs as if they were variable by calculation of unit costs.
- Marginal costing relies on being able to separate fixed and variable costs. This may not be possible for all organisations.

- Marginal costing may have little relevance in industries where the majority of the total cost is fixed, such as, for example advanced manufacturing technologies.

- An element of subjectivity exists when apportioning fixed costs and deciding on an appropriate basis to calculate an overhead absorption rate.

- Marginal costing can be useful in flexible budgeting, where separation of fixed and variable cost elements allows more effective budget control comparisons.

- As there is an element of fixed overhead that is carried forward to the next period in closing stock values, the analysis and understanding of absorption costing profit statements may cause confusion in periods where stock levels are changing. In marginal costing the variability in profit levels results directly from changes in the level of sales revenue and cost levels.

- When pricing decisions are made, marginal costing takes a short term view. In the longer term all costs have to be covered and as such absorption costing may be more suitable.

1 mark per relevant point up to a maximum of 6 marks

(20)

Question 4

(a) Process to set the capital budget:

- Starting point should be the existing capital programme.
- The position on existing schemes needs to be established.
- Policy considerations from the corporate planning process need to be considered and built in.
- New proposals are put forward by departmental heads with justification.
- Schemes may be appraised in terms of feasibility.
- Financial appraisal should be carried out and funding planned.
- External approval will be secured if required.
- Programme is approved by senior management.

1 mark per relevant point to a maximum of 4 marks

(b) Contents of the capital budget:

- Description of scheme with location, size and other relevant features.
- Need for the scheme and priority ranking.
- Start date, implementation period and completion date.
- Capital costs of the scheme, analysed over type and over financial period.
- Revenue consequences in the year of completion and the full year effects .

1 mark per relevant point to a maximum of 4 marks

(c) Limiting factors to be considered:

- Finance availability.
- External controls.
- Legislation.
- Government and EU controls (normally on borrowing and spending).
- Revenue consequences.

1 mark per relevant point to a maximum of 3 marks
(½ mark for identification, ½ for explanation)

(d) Sources of Finance

- Borrowing or other credit arrangements. These may be leasing or hire purchase. There may be legal or other controls connected to these.
- Internal sources of finance (reserves).
- Receipts from the sale of fixed assets.
- Income received from outside bodies (eg Grants from the EU or central government).
- Private finance.
- Charitable donations.

1 mark per relevant point to a maximum of 3 marks

(e) How the budget should be monitored

- Will often be a multi-disciplinary activity with a number of people being involved in the monitoring process.
- Need to monitor the overall financing position in order to monitor cash flows, ensuring appropriate financing arrangements are in place and external controls are complied with.
- Physical progress against budget need to be monitored as there will be a financial effect of going over schedule.
- Individual schemes need to be monitored in relation to estimated costs and tight control should be maintained.
- Information will be non financial and financial.

1 mark per relevant point to a maximum of 4 marks

(f) Revenue consequences

- Should be a link to the revenue budgeting process.
- May be a cost of financing that needs to be built in to the revenue budget.
- Other revenue costs need to be considered (eg staff, overheads).

1 mark per relevant point to a maximum of 2 marks

(20)

Question 5

(a) Sales receipts

	July	August	September	
Data:				
Sales (packs of balls)	15,000	16,000	15,500	
Price per pack (£)	12.00	12.00	12.00	
Sales value (£)	180,000	192,000	186,000	½
Receipts				
July sales (£)	-	72,000	108,000	½
August sales (£)	-	-	76,800	½
September (£)	-	-	-	
Outstanding debtors	64,000	56,000	-	½
Total receipts	64,000	128,000	184,800	
Shop sales (40 x £16)	640	640	640	*1*
Production of tennis balls				
Sales (tennis balls)	15,040	16,040	15,540	
Opening stocks	(12,000)	(21,000)	(30,000)	
Closing stocks	21,000	30,000	39,000	
Production	24,040	25,040	24,540	*1*
Purchase of raw materials				
Production	24,040	25,040	24,540	
Opening stock	(20,000)	(32,500)	(45,000)	
Closing stock	32,500	45,000	57,500	*1*
Purchases	36,540	37,540	37,040	
Cost (£)	0.70	0.72	0.72	
Total price (£)	25,578	27,029	26,669	½
Payment		25,578	27,029	½
Opening creditors	70,500			
Labour				
Production (tennis balls)	24,040	25,040	24,540	
Minutes (prod x 3 mins)	72,120	75,120	73,620	
Hours	1,202	1,252	1,227	
Rate per hour (£)	5.50	5.50	5.61	
£	6,611	6,886	6,883	*2*

'Anyone for tennis' (Tennis Ball Manufacturing Division)
Cash flow forecast July – September

Sales receipts	**July** **£**	**August** **£**	**September** **£**
Sales to tennis clubs	64,000	128,000	184,800
Shop sales	640	640	640
Total receipts	64,640	128,640	185,440
Payments			
Raw materials	70,500	25,578	27,029
Labour costs	6,611	6,886	6,883
Shop costs	7,350	7,350	7,350
Production overhead	3,500	3,500	3,500
Loan repayment		60,000	
Bank interest	350	587	339
Total payments	88,311	103,901	45,101
Net cash flow	(23,671)	24,739	140,339
Opening bank balance	(35,000)	(58,671)	(33,932)
Closing bank balance	**(58,671)**	**(33,932)**	**106,407**

4

Comments:

- The bank overdraft increases in July but decreases in August and returns to a credit status in September.
- The loan repayment could be negotiated with the central office to pay in instalments.
- Tennis clubs could be encouraged to pay earlier by offering a discount.
- Costs could be reduced or sales could be increased.

1 mark per relevant point to a maximum of 2 marks
(14)

(b) Strategic budgets:

- Set in relation to a longer time period (3-10 years).
- Wide in scope and content.
- Contains organisation wide development over a specified time horizon.
- Do not contain a large amount of detail.

2

Tactical budgets:

- Deal with specific parts of the strategic plan.
- Must contain enough detail to guide short term operations.
- Should be consistent with the long term strategic budget.
- Normally set on an annual basis.

2

Operational budgets:

- Puts the tactical budgets into operation (eg materials and labour budgets).
- Monitored on a regular basis.
- Short time horizon.

2
(6)

(20)

Question 6

(a) Standard cost of replacing one boiler:

		£
Direct material		
	Boiler	85.00
	Other materials	30.00
Trade in reduction		(22.00)
Direct labour		
4 hours x £6.30		25.20
Fixed overhead (W1)		12.15
Total		130.35

W1:

Fixed overhead per annum	£96,240
Number of boilers to replace	7,920
Overhead per boiler (£96,240 / 7,920)	£12.15

(3)

(b) Comparisons of budgeted and actual costs.

	Standard cost of 635 Boilers installed	Actual cost	Variance
	£	£	£
Direct material boilers	53,975	58,740	4,765 (A)
Trade in reduction	(13,970)	(13,970)	0
Direct materials other	19,050	20,170	1,120 (A)
Direct labour	16,002	17,425	1,423 (A)
Fixed overhead	7,715	7,300	415 (F)
Total	82,772	89,665	6,893 (A)

Variance analysis:

Boilers

Materials price variance

(Standard price – Actual price) x actual quantity
(£85.00 – £89.00) x 660 2,640 (A)

1

Materials usage

(Standard usage – Actual usage) x standard price
(635 – 660) x £85.00 2,125 (A)

1

Total material (boilers) 4,765 (A)

Other direct materials

Materials price variance		
(Standard price – Actual price) x actual quantity		
(£30.00 – £30.56) x 660	370 (A)	*1*
Materials usage		
(Standard usage – Actual usage) x standard price		
(635 – 660) x £30.00	750 (A)	*1*
Total material (other)	1,120 (A)	
Total material	5,885 (A)	
Direct labour		
Labour rate		
(Standard rate – Actual rate) x actual hours		
(£6.30 – £7.71) x 2,260	3,187 (A)	*1*
Labour efficiency		
(Hours paid for – standard hours) x standard rate		
(2,260 – (4 x 635)) x £6.30	1,764 (F)	*1*
Total labour	1,423 (A)	
Fixed overhead		
Fixed overhead expenditure variance		
(Budgeted overhead – actual fixed overhead)		
(8,019 – 7,300)	719 (F)	*1*
Fixed overhead volume variance		
(Budgeted output – actual output) x Fixed overhead per unit		
(660 – 635) x 12.15	304 (A)	*1*
Fixed overhead efficiency variance		
(Standard hours – actual hours) x standard rate		
(2,540 – 2,260) x 3.04 (12.15/4)	851 (F)	

1

Fixed overhead capacity variance

(Actual output – Budgeted output) x standard rate

(2260 – 2640) x 3.04 (12.15/4) 1155 (A)

1

Statement to reconcile Standard cost to actual cost for month 1

	£A	£F	£
Standard cost			82,772
Materials variance boilers			
Price	2,640		
Usage	2,125		
Materials other			
Price	370		
Usage	750		
Labour			
Rate	3,187		
Efficiency		1,764	
Fixed overhead			
Expenditure		719	
Volume efficiency		851	
Volume capacity	1,155		
Actual cost			89,665

3
(13)

(c) Advantages

- Enables management information to be provided relating to costs and efficiency.
- Variances can be investigated promptly and corrective action taken where necessary.
- Can aid performance assessment of individual managers throughout the organisation.
- Can be used to compare trends over time.

Disadvantages

- Standards are set based on historical data.
- Standards are estimated so therefore may have limited accuracy.
- Historical records may include inefficiencies.

1 mark per relevant point to a maximum of 4

(20)