

MANAGEMENT ACCOUNTING

Professional 1
June 2001

MARKING SCHEME

Question 1

St Andrews NHS Trust

(a)

Chemicals (millilitres)		Standard Cost		
		1000 ml		1 ml
		£	£	£
A	200 x £2.20	440		
B	300 x £1.70	510		
C	700 x £0.80	<u>560</u>	1,510	1,510
Labour	Hours			
Pharmacist	2 x £25.00	50		
Technician	4 x £18.00	<u>72</u>	<u>122</u>	<u>0.122</u>
Total Standard Cost			<u>1,632</u>	<u>1,632</u>

2

(b) **Cost Variances – (Materials)**

(i)

Materials Price	A	B	C	Total
Purchased (ml)	8,800	19,600	35,600	
Price per ml (difference)	(£0.15)	(£0.05)	£0.10	
Total Price Variance	(£1,320) A	(£980) A	£3,560 F	£1,260 F

3

(ii)

Standard Mixture	*AQ at AM	AQ at SM	Diff	Standard Cost	Variance
A (1/6)	10,800	11,000	200	£2.20	£440 F
B (1/4)	18,600	16,500	(2,100)	£1.70	(£3,570) A
C (7/12)	36,600	38,500	1,900	£0.80	£1,520 F
	66,000				(£1,610) A

3

*(AQ (Actual Quantity Used) = Open. Stock + purchases – close. stock)

Yield	Actual Input (ml)	MI 66,000
	Normal Yield (1,000/1,200)	55,000
	Actual Yield	<u>54,000</u>
	Variance	<u>(1,000) A</u>
	(1,000 ml Standard Cost £1,510) (see a)	<u>(£1,510) A</u>

2

Cost Variances (Labour)

(iii) Rate [(126 x £25) - £3,276] + [(222 x £18) - £4,329]

= (£459) A

1

(iv)

Standard Mixture	AQ at AM	AQ at SM	Diff	Standard Cost	Variance
Pharmacy (1/3)	126	116	(10)	£25	(£250)
Technical (2/3)	<u>222</u>	<u>232</u>	10	£18	<u>£180</u>
	<u>348</u>	<u>348</u>			<u>(£70)</u>
					<u>(£70) A</u>

3

Yield	Actual Inputs (hrs)	348
	St. Inputs (54,000 / 1000 x 6)	<u>324</u>
	Lost Yield (hrs)	24
	At £20.33* per hr x 24 =	<u>(£488) A</u>

2

*£25 x 1/3 = £8.33
£18 x 2/3 = £12.00
£20.33 Weighted Average hourly rate

(v) Sales Variance

£209,000 - (54,000 x £4) = (£7,000)

1

- (c) Standard costing in the public sector can be used where: (15)
- (i) There is an identifiable standard unit of service. 1
 - (ii) The standard service required to be produced in sufficient quantity to make the approach worthwhile. 1
 - (iii) The means of producing the service should be capable of being standardised in terms of time taken to fulfil the service, materials inputs, and so on. 1
- (3)
- (20)

Question 2

(a) **Surface Car Parks**

No. of spaces	720		80	800
Expenditure	2000 Prices	2001 Prices	Others	Total 2002/2003
Employees	12,250 (x1.05)	12,863		12,863
Premises	14,000 (x1.045)	14,630		14,630
S & S	4,160 (x1.05)	4,368		4,368
Estab.	29,230 (x1.035)	30,253		30,253
Asset Rental	<u>9,440</u>	<u>9,440</u>	4,000	<u>13,440</u>
	69,080	71,554	4,000	75,554

Income

Fees & charges	63,000 (x1.05)	66,150 (W.I)		71,222
Rents	800 (x1.05)	840		840
TOTAL INCOME	<u>63,800</u>	<u>66,990</u>		<u>72,062</u>

NET COST	5,280	4,564		3,492
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3

Multi Storey

Expenditure	2000 Prices	2001 Prices	Others	Total 2002/2003
No. of spaces	900			
Employees	19,500 (x1.05)	20,475	2,300	22,775
Premises	46,220 (x1.045)	48,300		48,300
S & S	3,330 (x1.05)	3,497		3,497
Estab.	18,550 (x1.035)	19,199		19,199
Asset Rental	<u>70,200</u>	<u>70,200</u>		<u>70,200</u>
	157,800	161,671		163,971

Income

Fees & charges	69,500 (x1.05)	72,975 (x1.02)		74,435
Rents	8,230 (x1.05)	8,642		8,642
TOTAL INCOME	<u>77,730</u>	<u>81,617</u>		<u>83,077</u>

NET COST	80,070	80,054		80,894
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(W.I) $(66,150 \times \frac{80}{720}) \times \frac{1}{2} = 3,675 \dots 66,150 + 3,675 = 69,825 \times 1.02 = 71,222$

3

Coach Parking		200		200	
No. of spaces					
Expenditure	2000	2001	Others	Total	
	Prices	Prices		2002/2003	
Employees	14,200 (x1.05)	14,910	2,300	17,210	
Premises	9,900 (x1.045)	10,346		10,346	
S & S	1,330 (x1.05)	1,397		1,397	
Non-recurring expense	(800) (x1.05)	(840)		(840)	
Estab.	14,400 (x1.035)	14,904		14,904	
Asset Rental	<u>27,000</u>	<u>27,000</u>		<u>27,000</u>	
	66,030	67,717		70,017	
Income					
Fees & charges	44,160 (x1.05)	46,368 (x1.02)		47,295	
Rents	0	0		0	
TOTAL INCOME	<u>44,160</u>	<u>46,368</u>		<u>47,295</u>	
NET COST	21,870	21,349		22,722	

3

Strathdon District Council

Budget Prices 2002/03 at November 2001

No. of spaces	Surface	Multi-storey	Coach	Total
	car parks	car parks		2002/2003
	800	900	200	
Expenditure	£	£	£	£
Employees	12,863	22,775	17,210	52,848
Premises	14,630	48,300	10,346	73,276
S & S	4,368	3,497	557	8,422
Estab.	30,253	19,199	14,904	64,356
Asset Rental	<u>13,440</u>	<u>70,200</u>	<u>27,000</u>	<u>110,640</u>
TOTAL	75,554	163,971	70,017	309,542
Income				
Fees & charges	71,222	74,435	47,295	192,952
Rents	840	8,642	--	9,482
TOTAL	72,062	83,077	47,295	202,434
NET COST	3,492	80,894	22,722	107,108

2
(11)

(b) **Further information required to calculate an out-turn figure.**

- | | | |
|-------|---|---|
| (i) | Details of staff pay increases in 2002. | 1 |
| (ii) | Price increases between November 2001 to 31 March 2003 for Premises, Supplies and Services, Establishment Expenses etc. | 1 |
| (iii) | Any changes in activity levels and their effect on the expenditure and income. | 1 |

1 mark for each point up to a maximum of 3

(c) **Advantages of incremental budgeting:**

- Simple and cheap.
- Easy to understand, requires few specific skills to prepare.
- Means the key areas of change are focused upon.

Disadvantages of incremental budgeting:

- Outputs in the public sector are difficult to measure and the political environment favours the consensus approach.
- Incremental budgeting looks backwards - it does not consider future requirements.
- Assumes existing budget patterns are relevant and satisfactory.
- There is no overall review of performance involved in the process.
- It does not deal with change well which is a particular problem in the public sector at present.

1 mark per point up to a maximum of 6

(20)

Question 3

- (a) The annual figures are not appropriate to the decision, for the following reasons:
- (i) Apportioned costs have been included, which will be incurred even if the space is unused. The annual figures should have considered the annual contribution of £2,000 and ignored the £10,000 share of existing university overheads.
 - (ii) The figures ignore the time value of money, an important factor in a decision, which will affect cash flows over five years.
 - (iii) The depreciation figure for the bookshop has assumed no residual value. This may not be correct?
 - (iv) Staff salaries have been charged as an annual cost – is this an apportionment of salaries which would be incurred anyway? or at least part of it? if so, the potential contribution could be £28,000.

1 mark per point up to a maximum of 3 marks
(3)

- (b) Bookshop operated by university

Relevant annual cash flows	£000	£000
Total sales		200
Cost of sales	160	
Staff salaries (assumed to be incremental)	<u>26</u>	<u>186</u>
		<u>14</u>

2

(NB. Interest on capital is not included as discounting process takes account of the interest rate, and it would be double counted if shown as a cash flow)

Net Present Value

Year	Cash Flow	Discount Factor	Present Value
	£	10% (5yrs)	£
0	(40,000)		(40,000)
1-5	14,000	x 3.79	<u>53,060</u>
Net Present Value			<u>13,060</u>

2

Payback period = 2 years 313 days

1

Internal Rate of Return

	Cash Flow	Discount Factor For 5yrs	Present Value
	£		£
at 25%	14,000	x 2.69	37,660
at 20%	14,000	x 2.99	<u>41,860</u>
			<u>4,200</u>

$$\text{IRR} = 20\% + \left(\frac{41,860 - 40,000}{4,200} \right) \times (25\% - 20\%)$$

$$= 20\% + 2.21$$

$$= 22.21$$

3

Bookshop rented to wholesaler

Year	Cash Flow	Discount Factor 10% (5yrs)	Present Value
	£		£
0	(20,000)	—	(20,000)
1-5	8,000	x 3.79	<u>30,320</u>
Net Present Value			<u>10,320</u>

2

Payback period = 2 ½ years

1

Internal Rate of Return

	Cash Flow	Discount Factors For 5yrs	Present Value
	£		£
at 30%	8,000	x 2.44	19,520
at 25%	8,000	x 2.69	<u>21,520</u>
			<u>2,000</u>

$$\text{IRR} = 25\% + \left(\frac{21,520 - 20,000}{2,000} \right) \times (30\% - 25\%)$$

$$= 25\% + 3.8$$

$$= 28.8\%$$

3

(14)

- (c) Both options generate a return in excess of the cost of capital and the highest IRR would be earned by renting the bookshop to the wholesaler.

However, on the basis of NPV it is recommended that the university operate the bookshop themselves, as this will generate the maximum wealth.

1½

Assumptions made:

- No residual value
- No dismantling costs
- Cost of financing stock negligible

1½
(3)

Other areas which may be mentioned and credit given if the student has not already obtained 3 marks are:

- (i) If the university runs the bookshop it will have greater control over the quality and range of books and stationery sold;
- (ii) Pricing can be controlled by the university;
- (iii) If the re-development is brought forward the university will not be committed to a 5 year contract with the wholesaler.

(20)

Question 4

(a) Establish current unit price and coming year's unit price

$$\frac{\pounds 2,250,000 + \pounds 250,000}{2,000} = \pounds 1,250 \quad \text{per window frame}$$

Establish unit variable cost

$$\text{Current year's variable cost per window frame} = \frac{2,250,000 \times 33\%}{2,000} = \pounds 371.25$$

$$\text{Coming year's variable cost} = \pounds 371.25 \times 1.05 = \pounds 389.8125$$

2

Break-even point if 2000 frames sold

$$\text{Total costs} = \pounds 2,250,000 \times 1.05$$

$$\text{Fixed costs} = \pounds 2,362,500 \times 67\%$$

$$\text{Fixed costs} = \pounds 1,582,875$$

$$\text{B.E.P.} = \frac{\pounds 1,582,875}{\pounds (1,250 - 389.8125)} = \frac{\pounds 1,582,875}{860.1875}$$

$$= 1,841 \text{ frames (rounded up)}$$

2

B.E.P if 1,700 frames are sold.

$$\text{B.E.P.} = \frac{\pounds 1,582,875 - \pounds 120,000}{860.1875}$$

$$= 1,701 \text{ frames (rounded up)}$$

2

B.E.P if 2,300 frames are sold.

$$\text{B.E.P.} = \frac{\pounds 1,582,875 + \pounds 60,000}{860.1875}$$

$$= 1,910 \text{ frames (rounded up)}$$

2

(8)

(b) 5% Surplus on 2,000 frames.

$$\text{Turnover} = 2,000 \times \text{£}1,250 = \text{£}2,500,000$$

$$5\% = \text{£}125,000$$

$$\text{Sales required} = \frac{\text{£}1,582,875 + \text{£}125,000}{860.1875}$$

$$= 1,986 \text{ frames (rounded up)}$$

\ Sales of 2,000 frames is sustainable

3

5% Surplus on 1,700 frames is not sustainable (no need to calculate as 1701 frames is the break-even point)

1

5% Surplus on 2,300 frames

$$\text{Turnover} = 2,300 \times \text{£}1,250 = \text{£}2,875,000$$

$$5\% = \text{£}143,750$$

$$\text{Sales required} = \frac{(\text{£}1,582,875 + \text{£}60,000) + \text{£}143,750}{860.1875}$$

$$= 2,077 \text{ frames}$$

\ 2,300 frames is sustainable

3
(7)

(c) Key underlying assumptions

- All other variables remain constant.
- A single product or constant sales mix.
- Complexity – related fixed costs do not change.
- Profits are calculated on a variable-costing basis.
- Total costs and total revenue are linear functions of output.
- The analysis applies to the relevant range only.
- Costs can be accurately divided into their fixed and variable elements.
- The analysis applies only to a short-term time horizon.

1 mark per point to a maximum of 5

(20)

Question 5

(a) **Relevant financial data to decision:**

	£	
Sales revenue ((£8 - £1 (discount)) x 1,000)	7,000	1
Purchase cost of additional materials	2,300	1
Cost of 40 hours of semi-skilled labour (40 x £4)	160	1
Hire of special machine (2 x £450)	900	1
Variable overhead at £5.90 per labour hour (260 x £5.90)	1,534	1

*1 additional mark for each explanation of why it is relevant to the decision
(maximum 5)*

(10)

(b) **The net relevant benefit of accepting the special order:**

	£	£
Relevant benefits		
Payment by government agency		7,000
Relevant Costs		
Purchase of additional materials	2,300	
Casual semi-skilled labour	160	
Hire of plant	900	
Variable overhead	<u>1,534</u>	<u>4,894</u>
Net relevant benefit		<u><u>2,106</u></u>

2

As acceptance yields a net relevant benefit, the special order would be accepted on financial grounds.

1

(3)

(c) **Qualitative factors which may influence the decision.**

- The possibility of receiving repeat orders from the same source in the future.
- Potential improvement in workforce morale as a result of the extra work – skilled labour is ‘not particularly busy’.
- How quickly does the government agency require the diaries – may need to pay overtime?
- Can the order be complete in time?
- If the discount is offered will other customers request a discount – how will this effect our income?

1 mark per point up to a maximum of 5

(5)

(d) **A sunk cost is defined as:**

A past (‘historic’) cost.

OR

A future cost whose payment is committed as the result of a different decision to the one under construction.

2

(20)

Question 6

- (a) Key requirements for information produced for budgetary control purposes.
- Timeliness – information should be produced quickly and presented to management.
 - Accuracy – information should be accurate as it is sourced internally and is historical.
 - Correct level of detail – information should be produced to budget holder level.
 - Comparison of budget against actual – actual should be compared to the budget and material variances identified.
 - Routine and frequent reports – information must be regular and frequent eg monthly.
 - Comprehensive coverage – coverage must be comprehensive and relevant to the budget holder.

(1 mark for each key requirement named and 1 mark for explaining what each key requirement means) (covered in P. 10.3 – 10.4 of study guide)

(12)

- (b) Key factors in the design of budgetary control reports.
- Try to avoid putting in the report any barriers to understanding.
 - Keep it as simple as possible.
 - Be prepared to experiment with different formats until one is found which managers find helpful to them.
 - Keep it relevant.
 - Provide as much non-financial information as you can while ensuring that it is relevant.
 - Provide advice on the interpretation of the reports, provide training where appropriate.
 - Financial staff must be prepared to listen.

*(1 mark per point up to a maximum of 6)
(covered in P. 10.9 of study guide)*

(6)

- (c) A profit centre is where the manager is made responsible for both expenditure and income and for the resultant profit/loss or surplus/deficit. 1

An investment centre goes one step further than the profit centre. The manager is given responsibility for investment and for the capital employed in the centre. The manager is not just responsible for income and expenditure. 1

(2)

(20)