MANAGEMENT ACCOUNTING

Professional 1
June 2002

MARKING SCHEME

Question 1

(a)

Munchester City Council:
The Leisure and Recreation Department: Playing Fields Budget for 2003/2004 based on November 2002 prices:

	Previous Base Budget 2002/2003 Nov. 2001 Prices £		Budget 2003/2004 Nov. 2002 Prices £
Expenditure			
Employees			
Administration	60,000	X 1.05 X 1.03	64,890
Grounds-men	240,000	X 1.03	247,200
Premises	254,000	X 1.035	262,890
Transport	75,000	X 1.025	76,875
Supplies & serv.	125,000	X 1.015	126,875
Transfer payments	112,000	X 1.035	115,920
Central dep.	95,000	-	95,000
Capital charges	250,000	- (X 0.01)	247,500
Total Expenditure	**1,211,000**		**1,237,150**
Income			
Fees and charges	153,000	X 1.035	158,355
Special events	124,000	X 1.02 + 225,000	351,480
Total Income	**277,000**		**509,835**
Deficit for Year	**934,000**		**727,315**

1 mark for Administration, 1 mark for special events
3 marks for all other adjustments and arriving at the deficit
(Deduct ½ for each mistake)
(5)

(b)

Munchester City Council:
The Leisure and Recreation Department: Playing Fields Budget for 2003/2004 outturn:

	Budget 2003/2004 Nov. 2002 Prices		**Budget 2003/2004 At Outturn**
	£		**£**
Expenditure			
Employees			
Administration	64,890	64,890 + ((64,890 X 0.03) X 9/12) =	66,350
Grounds-men	247,200	+(247,200/20) = 12,360 X 11/12 = 258,530 + ((258,530 X 0.033) X 5/12) =	262,085
Premises	262,890	X 1.03	270,777
Transport	76,875	X 1.035	79,566
Supplies & serv.	126,875	X 1.025	130,047
Transfer payments	115,920	X 1.03	119,398
Central dep.	95,000	No Change	95,000
Capital charges	247,500	No Change	247,500
Total Expenditure	**1,237,150**		**1,270,723**
Income			
Fees and charges	158,355	X 1.045	165,481
Special events	351,480	X 1.04	365,539
Total Income	**509,835**		**531,020**
Deficit for Year	**727,315**		**739,703**

2 marks for administration, 3 marks for Grounds-men
3 marks for other adjustments and arriving at the Deficit for the year
(8)

(c) Contingency: Outturn Budget 2003/2004 less Budget 2003/2004 Nov. Prices

739,703 – 727,315 = 12,388 *1*

(d)

- To aid the planning of annual operations.
- To co-ordinate the activities of the various parts of the organisation and to ensure that the parts are in harmony with each other.
- To communicate plans to the various responsibility centre managers.
- To motivate managers to strive to achieve the organisational goals.
- To control activities.
- To evaluate the performance of managers.

1 mark per point (see Drury p468)
(6)

(20)

Question 2

(a) **Aims and objectives**

- To estimate the organisation's capital financing requirements in relation to the available finance.
- To produce a capital programme setting out schemes over the budget period.
- To identify individual capital schemes.
- To co-ordinate the plans of the organisation.
- To provide a basis for estimating revenue effects to feed into revenue budgets.
- To act as a means of measuring and monitoring performance.
- To provide a basis for determining cash flow and capital financing requirements.
- To provide information for external bodies.

1 mark per point up to a maximum of 7

(b) **Contents**

- The title of the scheme, a description and reasons for the scheme.
- Priority ranking of the scheme in relation to other schemes.
- The estimated start time, period of implementation, and completion date.
- The estimated capital cost of the scheme, detailed for each year of the scheme.
- The estimated revenue costs throughout the life of the scheme.

1 mark per point up to a maximum of 4

(c) **Process**

- Review previous programme and individual schemes.
- Identify implications of corporate planning/decisions.
- Identify financing and other constraints.
- Obtain ideas for new schemes from department/division heads.
- Appraise suggested schemes against pre-set criteria.
- Gain political approval.
- Plan activity.

1 mark per point up to a maximum of 6

(d) **Monitoring**

- Monitoring of organisation's overall financial position, cash flow, financing arrangements and compliance with financial controls.
- Physical progress against project timetables (technical assessment) and the associated revenue implications.
- Monitoring of individual schemes

1 mark per point up to a maximum of 3

(20)

Question 3

(a)

(i) High & Low points method

	Gallons	Fuel Oil cost £000s
High (April)	**48,050**	**1,365**
Low (January)	**25,930**	**950**
Difference	**22,120**	**415**

Variable cost per machine hour = £415,000/22,120 = £18.761301

Substituting in month 10:
V.C. (48,050 x £18.761301) = £901,480.51
F.C. (£1,365,000 - £901,480.51) = £463,519.49
T.C. = £1,365,000

y = a + bx
Therefore
y = £463,519 + £18.76x *4*

(Note: Candidates may reach formula by substituting in month 7).

(ii) Least squares regression method

Month	**Gallons 000s**	**Fuel Oil £000s**		
	x	**y**	**x^2**	**xy**
1	29.95	1,235	897.0025	36,988.25
2	34.25	1,312	1173.0625	44,936.00
3	38.95	1,165	1517.1025	45,376.75
4	34.15	1,300	1166.2225	44,395.00
5	41.90	1,000	1755.61	41,900.00
6	26.05	1,150	678.6025	29,957.50
7	25.93	950	672.3649	24,633.50
8	32.12	1,160	1031.6944	37,259.20
9	30.99	1,035	960.3801	32,074.65
10	48.05	1,365	2308.8025	65,588.25
11	34.99	1,055	1224.3001	36,914.45
12	42.89	1,130	1839.5521	48,465.70
	420.22	**13,857**	**15224.6966**	**488,489.25**

4

$$\mathbf{b = n \sum xy - \sum x \sum y / n \sum x^2 - (\sum x)^2}$$

$$\mathbf{a = \sum y / n - b \sum x / n}$$

$$\mathbf{b = (12 \times 488489.25) - (420.22 \times 13857) / (12 \times 15224.6966) - (420.22)^2 = 6.3621682}$$

2

a = 13857/12 - (6.3621682 x 420.22/12) = £931.9574732 *2*

y = £931,957.47 + £6,362.16x *2*

(b) (i) Requirements for using mathematical techniques:

- Review of various activity bases to find the cost driver that has the greatest effect on cost.
- The cost data and activity should be related to the same period.
- A sufficient number of observations must be obtained if acceptable cost estimates are to be produced.
- Accounting policies mean that the data must be examined to ensure that accounting policies do not lead to distorted cost functions eg fixed maintenance costs allocated on the number of maintenance hours may make a fixed cost appear to be variable.
- Adjustment for past changes – using past data for future cost estimates will be based on the cost relationships of previous periods, this may have to be altered for future changes in the cost relationship.

(See Drury p683-684 for more details)

1 mark per requirement with an explanation, up to a maximum of 4

(ii) Least squares method is considered superior because:

- High low method takes account of highest and lowest observations only. These may not be typical.
- Least squares determines the line of best fit and takes all observations into account. *2*

(20)

Question 4

(a)

Library Service budgetary control statement
For the period April 1 2002 to 30 September 2002

	Annual budget £	Budget to date £	Actual to date £	Variance £
Expenditure				
Employees (W.1)	680,000	367,000	425,000	(58,000)
Premises (W.2)	310,000	181,000	160,000	21,000
Transport	18,000	9,000	9,500	(500)
Supplies and services (W.3)	280,000	93,333	93,000	333
Agency payments	52,000	26,000	26,000	0
Miscellaneous expenses	5,000	0	0	0
Support services	50,000	25,000	25,000	0
Capital charges	313,000	156,500	156,500	0
Total expenditure	1,708,000	857,833	895,000	(37,167)
Income				
Sales	6,000	0	0	0
Fees and charges (W.4)	153,000	97,920	98,500	580
Rents	8,000	4,000	3,900	(100)
Miscellaneous income	2,000	1,000	1,050	50
Total income	169,000	102,920	103,450	530
Net Expenditure	1,539,000	754,913	791,550	(36,637)

3 marks for layout, addition and presentation
2 marks available for explanation of any changes made
(eg addition of a variance column to make it easier to identify large variances)

W.1
Permanent employees = 590,000/12 x 6 = 295,000 + Casual employees = 90,000 x 0.8 = 72,000 = £367,000 *1½*

W.2
Premises = 110,000 + (55,000/12 x 6 =) 27,500 + (145,000 x 0.3 =) 43,500 = £181,000 *1*

W.3
Supplies and services = 280,000/3 = £93,333 *1*

W.4

Fees and charges = 153,000 x 0.4 = 61,200 + (153,000 – 61,200) = 91,800/10 =9,180 x 4) = 36,720 = £97,920 *1½*

1 mark for the adjustment to Miscellaneous Expenses
1 mark for Sales income adjustment

(12)

(b)

- Separation into controllable and non-controllable areas eg Support services may be out-with Chief Librarians control.
- Previous month's figures could also be attached making it easier to identify when costs or income go out of line from the profile.
- Percentage variance as well as amount.

1 mark per reasonable point made up to a maximum of 3

(c) Virement is an administrative device that provides a degree of flexibility to the budget that is required to deal with changing circumstances and/or unexpected developments. Virement means the transfer of monies from one budget head to another. It allows for the budget to be adjusted to bring it back into line with the actual. It is the process of meeting overspends in one area with underspending in another area. *2*

Regulations controlling the use of virement:

- Definition of whom is allowed to exercise virement in the organisation and if this is subject to approval.
- Need to establish the level of detail at which virement could be exercised eg can transfers be made between objective heads such as Primary and secondary schools or only between subjective heads within a school budget.
- Normally an amount is specified either in absolute or percentage terms.
- Regulations may exclude virement in certain circumstances.

(See study guide P10.13 for more information)

1 mark per point up to a maximum of 3
(5)

(20)

Question 5

(a) Payback

Machine A, cost £400,000: 2 years + (400 – 300)/130 = 2.77 years
Machine B, cost £460,000: 3 years + (460 – 440)/102 = 3.196 years
Machine C, cost £365,000: 2 years + (365 – 240)/192 = 2.651 years

1 mark per machine for the correct payback period
(3)

(b) Accounting Rate of Return

ARR = Average Profits/Average Investment
Average profits
Machine A = (666 – 380)/5 = £57,200
Machine B = (644 – 430)/5 = £42,800
Machine C = (632 – 349)/4 = £70,750

Average Investment = (initial investment + scrap value)/2
Machine A 420/2 = £210,000
Machine B 490/2 = £245,000
Machine C 381/2 = £190,500

ARR:
Machine A £57,200/£210,000 X 100 = 27.24%
Machine B £42,800/£245,000 X 100 = 17.47%
Machine C £70,750/£190,500 X 100 = 37.14%

2 marks per machine, ½ mark deducted for each mistake
(6)

(c) Net Present Value

Machine A	Outflow	Inflows	Discount Factor	Present Value
Year				
0	-400,000		1.00	-400,000
1		160,000	0.9091	145,456
2		140,000	0.8264	115,696
3		130,000	0.7513	97,669
4		125,000	0.6830	85,375
5		131,000	0.6209	81,338
				125,534

Machine B	Outflow	Inflows	Discount Factor	Present Value
Year				
0	-460,000		1.00	-460,000
1		200,000	0.9091	181,820
2		140,000	0.8264	115,696
3		100,000	0.7513	75,130
4		102,000	0.6830	69,666
5		132,000	0.6209	81,959
				64,271

Machine C	Outflow	Inflows	Discount Factor	Present Value
Year				
0	-365,000		1.00	-365,000
1		110,000	0.9091	100,001
2		130,000	0.8264	107,432
3		192,000	0.7513	144,250
4		216,000	0.6830	147,528
				134,211

2 marks awarded for cash inflows
2 marks awarded for discount factor and present value
1 mark awarded for NPV

(5)

(d) The machine with the largest NPV should be selected, Machine C. Machine C is also the preferred option under the ARR method and the Payback method. *1*

(e) ARR: Gives % return on investment using a concept that is familiar to management, but it is based on profits not cash flows.

Payback: Useful where cash flow is a priority. Shows how quickly the investment will pay back.

NPV: Superior method that takes into account the time value of money. Highest NPV is preferable.

1 mark for relevant comment on each method, to a total of 3
(Maximum of 1 mark for each method)

Qualitative factors should be considered eg skilled staff available to operate new machine? Reliability record of the machines, environmental factors such as noise level of machines, pollution created by the machines etc. *2*

(5)

(20)

Question 6

(a)

	£	£
Sales Revenue		1,800,000
Less relevant costs:		
Cost of goods sold	1,000,000	
Selling costs	670,000	
Storage variable costs	35,500	1,705,500
Excess of relevant revenues over relevant costs		**94,500**

(NB. Candidates may use a different approach by highlighting the changes for each of the areas, however they should still arrive at the same answer).

1 mark per correct cost or revenue identified
(5)

(b) Selling expenses are relevant to the decision because they will be eliminated if the Asia area is closed.
It can be seen that future cash flows will decline by £94,500 if the Asia area is closed because the company will lose a contribution of £94,500 towards the administration and storage common fixed costs. Whenever a segment of a business can provide a contribution towards meeting common fixed costs that cannot be reduced if the segment is closed, then it should not be closed or dropped (assuming that the facilities have no alternative use that would yield a higher contribution, and that sales in the other segments are unaffected by the decision). *5*

(c) (i) A sunk cost is a cost which has already been incurred and which cannot now be recovered. It is a past cost which is not relevant in decision making. Eg development costs already incurred such as research costs already incurred, legal costs already incurred in setting up a project. *2*

(ii) An opportunity cost is the benefit forgone by choosing one opportunity instead of the next best alternative. Opportunity costs are relevant costs to decision making. Examples such as the opportunity cost of expanding a factory may be to invest the money in government stocks ie the next best return. *3*

(iii) A relevant cost is a future cash flow arising as a direct consequence of a decision. Therefore only costs which will differ under some or all of the available opportunities should be considered. Relevant costs are sometimes referred to as incremental or differential costs. Examples would be incremental revenues attributed to accepting a new one off order. *3*

(iv) Contribution is the selling price less variable cost. It is the contribution made towards fixed costs and profit. If a product makes a positive contribution it should continue to be produced in the short term. *2*

(20)