

MANAGEMENT ACCOUNTING

Certificate stage examination

8 June 2006

MARKING SCHEME



Question 1

(a) Cost for 7,500 prospectuses based on full cost method:

Set up and run of 500 prospectuses

Materials:		£	
Blue ink	1 x £21.00	21.00	
Yellow ink	2 x £17.00	34.00	
Red	1.5 x £22.00	33.00	
Black	5 x £27.50	137.50	
		<u>225.50</u>	
Paper	500 x £1.20	600.00	
Labour skilled	7 hrs x £13.00	91.00	
Labour unskilled	6 hrs x £7.00	42.00	
		<u>133.00</u>	
Prime cost		958.50	1

Production overheads:

Set up costs		600.00	
Materials handling - ink £40 x 4		160.00	
- paper		11.00	
Labour related	13 hrs x £3	39.00	
Machine related	15 hrs x £4.50	67.50	
		<u>877.50</u>	2
Production cost		1,836.00	

Cost for each 1,000 subsequent prospectuses:

Materials:			
Ink	225.50 x 2	451.00	
Paper	1,000 x £1.20	1,200.00	
Labour	Unskilled 12 hrs x £7	84.00	
Production			
Overheads:	Materials handling (as above)	160.00	
	Paper £11 x 2	22.00	
	Labour related £3 x 12	36.00	
	Machine related £4.50 x 25	112.50	
		<u>2,065.50</u>	2

Cost of 7,500 prospectuses:

Initial 500		1,836.00	
7,000 copies	7 x 2,065.50	14,458.50	
Total production cost		<u>16,294.50</u>	
10% mark up		<u>1,629.45</u>	
Price to be quoted		17,923.95	1 (6)

(b) Cost that could be quoted using relevant cost principles:

For 7,500 prospectuses, 8 print runs would be required (one initial set up run and 7 subsequent runs).

Materials Costs:

Requirements:

Blue	15 litres	
Yellow	30 litres	
Red	22.5 litres	
Black	75 litres	1

Blue: This is in short supply and in regular use. The relevant cost is the cost to replace that used. This is 50% above the current price.

	£	
15 x £20.00 x 1.5	450.00	1

Yellow: This has no resale value and has a limited shelf life. There is a relevant saving on the disposal cost of the ink in stock:

(40.00)

30 litres are needed less 12 already in stock = 18 litres. The relevant cost of this is the current price.

18 x £16.00	288.00	2
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Red: The red ink has no other use. The relevant cost of that in stock is therefore the resale value:

3 x £14.00	42.00
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The relevant cost of the remainder needed (22.5 – 3 = 19.5 litres) is the current price:

19.5 x £18.00	351.00	2
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Black: The black ink is in regular use so the relevant cost is the current price:

75 x £29.00	2,175.00	1
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Total relevant cost of ink	3,266.00
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Paper costs: the relevant cost is the replacement cost as the paper is in regular use.

£1.25 x 7,500	9,375.00	1
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Labour costs:

Cost of hiring additional labour to replace the unskilled workers' duties.

600.00

The skilled workers will be paid their fixed salary and no overtime is required. 1

Overheads:

Set up costs 600.00

Variable element of the machine related overheads only.

£4.50 x 10% = £0.45 per machine hour

£0.45 x (15 + (25 x 7)

85.50

Total relevant cost

13,926.50

1
(10)

(c)

- Since there is spare capacity, it would make sense to use relevant costs when the job may not be won if the price based on full cost principles was quoted.
- Laserquest should consider whether there is likely to be more work from the university. Would they expect future jobs to be priced in the same way?
- Existing customers may hear of the price offered. This may cause a lack of goodwill or business.
- Overheads comprise a significant amount of the full production cost. These need to be covered in the long term.

1 mark per relevant point to a total of 4

(20)

Question 2

(a) Calculation of the average cost of Materials:

Material A

$$\frac{1,355 + 262 + 231}{568 + 105 + 88} = \frac{1,848}{761} = 2.43 \quad \frac{1}{2}$$

Material B

$$\frac{735 + 200}{175 + 43} = \frac{935}{218} = 4.29 \quad \frac{1}{2}$$

Manufacturing Cost

	£	
Direct materials		
A: 105 kilos x £2.43	255.15	
B: 43 kilos x £4.29	184.47	
	439.62	1
Direct labour		
Dept X: 21 hrs x £9.80	205.80	
Dept Y: 14 hrs x £8.60	120.40	
Dept Z: 43 hrs x £10.20	438.60	
O/T Premium: 12 hrs x £10.20	122.40	
	887.20	2
Overheads (<i>workings – see below</i>)		
Dept X: 114 hrs x £1.22	139.08	
Dept Y: 65 hrs x £2.31	150.15	
Dept Z: 43 hrs x £0.85	36.55	
	325.78	1
Manufacturing cost	1,652.60	
Profit Margin		
1652 / 85 x 15	291.64	
Selling Price	1,944.24	1

Allocation of Overheads

Overhead	Allocation	Total £	Dept X £	Dept Y £	Dept Z £	Admin £	Maint £
Light & heat	Floor Area	35,000	10,532	14,048	3,516	1,686	5,218
Machine depreciation	Machine Hrs	44,000	25,882	12,941	5,177	—	—
Indirect Mat/Lab	% Given	88,000	17,600	22,000	13,200	13,200	22,000
Machine insurance	Machine Hrs	15,000	8,824	4,412	1,764	—	—
Rates	Floor Area	70,000	21,064	28,096	7,032	3,372	10,436
	TOTALS	252,000	83,902	81,497	30,689	18,258	37,654
Marks		½	½	½	½	½	½

Simultaneous Equation

Administration = A

Maintenance = M

$$A = 18,258 + 0.20M$$

$$M = 37,654 + 0.30A$$

1

$$A = 18,258 + 0.20(37,654 + 0.30A)$$

$$A = 18,258 + 7530.8 + 0.06A$$

$$0.94A = 25,788.8$$

$$A = 27,435$$

1

$$M = 37,654 + (0.30 \times 27,435)$$

$$M = 45,885$$

1

Calculation of Overhead Absorption Rates

Total	Dept X	Dept Y	Dept Z	Admin	Maint
£	£	£	£	£	£
252,000	83,902.00	81,497.00	30,689.00	18,258.00	37,654.00
- admin	4,115.25	8,230.50	6,858.75	-27,435.00	8,230.50
- maintenance	18,354.00	11,471.25	6,882.75	9,177.00	-45,885.00
252,000	106,371.25	101,198.75	44,430.50	-	-
Marks	½	½	½		
Absorption Basis	Machine Hours	Machine Hours	Labour Hours		
	87,500	43,750	52,500		
Marks	½	½	½		
Absorption Rate per hour	£1.22	£2.31	£0.85		
Marks	½	½	½		

(16)

- (b)** Repeated Distribution: in this method the service department costs are allocated repeatedly until the figures become insignificant. This method gives the same or very similar answers as the Simultaneous Equation method.

Specified Order of Closure: in this method the service department overheads are apportioned in a certain order. The service department which does the largest proportion of the work for the other service departments is closed first, followed by the other service departments.

Award 2 marks for each method up to a maximum of 4

(20)

Question 3

(a) Calculation of variances:

Sales price variance.	£	
Standard selling price	20.02	
Actual selling price	24.00	
Variance	<u>3.98</u>	1
X actual sales volume 1,800	7,164F	
Sales volume		
Budgeted sales volume	2,000	
Actual sales volume	<u>1,800</u>	
	200	
At standard selling price per 5 litres £20.02	£4,004A	1
Total Sales variance	£3,160F	
Pineapple:		
Material price	£	
Standard cost of materials used 8,500kg x £1.30	11,050	
Actual cost of materials used	<u>12,325</u>	
Variance	1,275A	1
Material usage	Kg	
Standard quantity for actual production 1,800 x 5kg	9,000	
Actual quantity used	<u>8,500</u>	
	500	
at standard cost per kg x £1.30	£650F	1
Total pineapple variance	£625A	
Mango:		
Material price	£	
Standard cost of materials used 6,750 x £0.65	4,387.5	
Actual cost of materials used	<u>3,645.0</u>	
Variance	742.5F	1
Material usage	Kg	
Standard of quantity for actual production 1,800 x 3	5,400	
Actual quantity used	<u>6,750</u>	
	1,350 A	
At standard cost per kg x £0.65	£877.5A	1
Total mango variance	£135A	

Standard mix
 5kg = 62.5%
3kg = 37.5%
 8kg = 100%

Materials mix variance:

Actual mix x standard price		£	
Pineapple	8,500kg x £1.30		11,050.00
Mango	<u>6,750kg x £0.65</u>		<u>4,387.50</u>
Total	15,250		15,437.50

Actual total quantity x standard mix

		£	
Pineapple	15,250kg x 62.5% x £1.30		12,390.63
Mango	15,250kg x 37.5% x £0.65		<u>3,717.19</u>
Total			16,107.82

Variance £15,437.50 - £16,107.82 = £670.32F 1

Materials yield variance:

Actual total quantity x standard mix

		£	
Pineapple	15,250kg x 62.5% x £1.30		12,390.63
Mango	15,250kg x 37.5% x £0.65		<u>3,717.19</u>
Total			16,107.82

Budgeted total quantity x standard mix

1,800 x 5 = 9,000
 1,800 x 3 = 5,400
 14,400

		£	
Pineapple	14,400kg x 62.5% x £1.30		11,700
Mango	14,400kg x 37.5% x £0.65		<u>3,510</u>
Total			15,210

Variance £16,107.82 – £15,210 = 897.82A 1

Labour rate

		£	
Standard cost of labour used	925 hours x £6.00 =		5,550
Actual cost of labour used			<u>5,735</u>
Variance			185A

1

Labour efficiency

Standard hours for actual production	900
Actual quantity used	<u>925</u>
	25

At standard cost per unit x £6.00 £150A 1

Total labour variance £335A

Variable overhead total variance			
		£	
Budgeted overhead 1,800 x 1.5 x £1.50		4,050	
Actual overhead		4,200	
		150A	1
Fixed overhead total variance			
		£	
Budgeted overhead		7,500	
Actual fixed overhead		7,700	
		200A	1 (12)

(b) Statement to reconcile the standard cost of production to actual cost of production in May.

	£	£
Budgeted cost (1,800 units) (6.50+1.95+3.00+2.25) x 1800) + 7,500		32,160
Material price variances:		
Pineapple	1,275A	
Mango	742.50F	532.50A
Materials usage variances:		
Pineapple	650F	Mix 670.32F
Mango	877.5A	Yield 897.82A
Labour variances:		
Labour rate	185A	
Labour efficiency	150A	335A
Overhead variances		
Variable	150A	
Fixed	200A	350A
Actual cost		33,605

2

Explanation of variances:

- Although the sales volume was lower than expected, the price per litre was higher. This led to an overall favourable variance. This may have been possible because of a change in market conditions.
- Less pineapple was used than budgeted. This was replaced by mango. This may have been because the cost of pineapple was higher than budgeted, whereas mango could be obtained more cheaply.

- The labour cost more per hour and more was used than budgeted. This may have been because of the efficiency of the machinery or processes used or a higher skilled worker being used.

*1 mark for each relevant point to a maximum 3
(5)*

(c) Potential problems:

- Potential for dysfunctional decisions. Managers may make decisions to attempt to correct one variance (for example price variance may try to be corrected by purchasing cheaper materials), at the expense of another (materials that are cheaper may not be of sufficient quality).
- Difficulty in determining what is a significant variance.
- Assessing the impact of random factors.
- Making allowance for the effect of inflation.
- Impact of measurement errors.
- Risk of stressing financial performance to the detriment or exclusion of non-financial factors.
- Standards may become out of date.

1 mark for each relevant point to a maximum 3

(20)

Question 4

(a) Workings:

Income:

Tennis club fees:

£504,000 x 75% = £378,000. All included in budget to date.

£504,000 x 25% = £126,000 profiled as follows:

	£	
Aug - Oct 30% =	37,800	
Nov - Jan 40% =	50,400	
Feb - April 20% =	<u>25,200</u>	
Total	113,400	
Total in budget to date	491,400	1

Squash court income:

Total budget represents 9 months only £168,000/9 x 6 = £112,000 budget to date. 1

Clubhouse bar income (total budget 88,320):

	£	
Aug - Oct 30% =	26,496	
Nov - Jan 40% =	35,328	
Feb - April 20% =	<u>17,664</u>	
Total	79,488	½

Club functions:

£6,000/2 functions = £3,000 to be included in budget to date. ½

Items for resale:

	Tennis balls and accessories	Squash accessories	Clothing & Footwear
	£	£	£
Opening stock	1,650	1,200	15,000
Purchases	2,400	2,400	72,000
Closing stock	<u>(950)</u>	<u>(1,750)</u>	<u>(17,000)</u>
Cost of sales	3,100	1,850	70,000
15% Mark up	3,565	2,127.50	80,500
Total	86,192.50		
Tennis and squash balls	(3,565 + 2,127.50)/12 x 9 =		4,270
Clothing & Footwear	80,500 x 0.7 = 56,350/6 x 3 =		28,175
	80,500 x 0.3 = 24,150/6 x 6 =		<u>24,150</u>
Profiled budget			56,595

4

Employees:

Permanent employees	£	
£400,000 / 12 x 9	=	300,000
Pay award		
£400,000 / 12 x 6 x 2.5%	=	<u>5,000</u>
		305,000

1

Casual staff		
£15,000 x 3 months	=	45,000
Pay award		
£15,000 x 2.5% x 2 months	=	<u>750</u>
		45,750
Total		350,750

1

Utilities:

Water £45,360 x 2/4 quarters = £22,680

Electricity £40,440 - 45% May payment £18,198 = £22,242/3 quarters x 2 = £14,828.

Gas £18,720 - 45% May payment £8,424 = £10,296/3 quarters x 2 = £6,864.

1

Maintenance:

Tennis court maintenance £39,000 x 75% = £29,250/4 x 2 = £14,625

Fruit machines £39,000 x 18% = £7,020/2 = £3,510

Computer equipment £39,000 x 7% = £2,730 – no budget to date as payment is not until 1 June 2006.

Total = £18,135

1

All other items should be profiled on a 9/12 basis.

1

Ridgewere University Tennis Club Budgetary Control Statement for the nine-month period August 1 2005 to April 30 2006

Budget head	Total budget	Profiled budget	Actual	Variance (- fav)
	£	£	£	£
Income				
Tennis club fees	504,000	491,400	445,320	46,080
Squash court income	168,000	112,000	148,440	-36,440
Clubhouse bar income	88,320	79,488	62,880	16,608
Corporate room hire	18,000	13,500	14,220	-720
Club functions	6,000	3,000	4,740	-1,740
Items for resale	88,320	56,595	59,350	-2,755
Total income	872,640	755,983	734,950	21,033
Expenditure				
Employees	453,250	350,750	362,880	12,130
Electricity	40,440	14,828	18,360	3,532
Gas	18,720	6,864	6,960	96
Rates	33,600	25,200	25,200	0
Repairs	21,600	16,200	15,360	-840
Maintenance	39,000	18,135	20,100	1,965
Water	45,360	22,680	21,180	-1,500
Items for resale	76,800	49,213	48,680	-533
Stationery	2,400	1,800	1,980	180
Miscellaneous	1,800	1,350	1,560	210
Central support	14,640	10,980	10,980	0
Costs				
Total expenditure	747,610	518,000	533,240	15,240
Surplus/(deficit)	125,030	237,983	201,710	36,273

1 mark to be awarded for improved format including variance column

Relevant comments may include:

- The budgeted surplus position is actually under budget at month 9. This is largely caused by a shortfall in income, but there are some small areas of overspending relating to the expenditure budget as well.
- It appears that the tennis club fees are down. This may be due to members not having paid the fees they are due to pay, in which case action should be initiated to chase up late payers. It may be necessary to analyse the tennis club usage by the non-subscribers as this may be showing a different pattern to that anticipated for some reason.
- Squash court income is higher than expected. It may have been difficult to anticipate the predicted demand for the facility and as such the budget may need to be revised in the future.
- The bar income is down on that anticipated. The cause of this should be investigated. It may reflect the lower income relating to tennis court fees.
- Staff costs are up on budget. Perhaps because of the cost of staffing the squash courts was not fully budgeted, or the pay award may have been higher than budget. This needs further investigation as it is a significant overspend.

*1 mark for each relevant point to a maximum of 3
(16)*

(b) Advantages of Profiling:

A profiled budget is based on patterns of known expenditure and income and the budget to date is profiled according to these. It therefore recognises that income and expenditure does not incur evenly throughout an accounting period. The comparison of budget to date and expenditure to date will therefore provide more meaningful as the expected expenditure/income will be compared with the actual expenditure/income. This is preferable to comparing expenditure in a month to 1/12 of the annual expenditure or that comparable depending on the month being reported.

2

Disadvantages of Profiling:

Last year's expenditure on its own may not be a typical profile. There may have been exceptional circumstances that caused particular patterns of expenditure to arise. A budget set based on these for a following year may show an unrealistic position.

Dangerous if budget holders are not educated and involved in the process. Inaccurate budgets may be produced as a result.

Absolute comparisons may be misleading. It may be more appropriate to show percentage variations to budget. It is sometimes difficult to agree an appropriate threshold when remedial action would be initiated.

2
(4)

(20)

Question 5

(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

(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

(c) Limiting factors to be considered:

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

½ mark per relevant point to a maximum of 3

(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 (e.g. Grants from the EU or central government).
- Private finance.
- Charitable donations.

1 mark per relevant point to a maximum of 3

(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

(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 (e.g. staff, overheads).

1 mark per relevant point to a maximum of 2

(20)

Question 6

(a) Available hours:

Frame manufacturers	37hrs x 40 employees = 1,480
Assembly	37 hrs x 20 employees = 740

Required hours to meet demand:

		LB	LE	GB	GE	Total
	Demand	200	75	220	80	
	X time per cycle	2.25	2.20	2.20	2.6	
= frame manufacture		450	165	484	208	= 1,307
	X time per cycle	1.25	1.80	1.40	3.00	
= assembly		250	135	308	240	= 933

Therefore labour for the assembly and accessory fitting is a limiting factor. 1

Calculation of contribution per unit of limiting factor:

	LB	LE	GB	GE	
	£	£	£	£	
Direct costs:					
Materials	55.00	60.00	60.00	100.00	
Labour: Frame	24.75	24.20	24.20	28.60	
Assembly	18.75	27.00	21.00	45.00	
Variable overhead	27.00	30.00	27.00	30.00	
Total variable cost	125.50	141.20	132.20	203.60	
Selling price	145.50	165.00	170.00	240.00	
Contribution per cycle	20.00	23.80	37.80	36.40	2

No of assembly hours	1.25	1.80	1.40	3.00
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Contribution per hour	16.00	13.22	27.00	12.13
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Ranking	2	3	1	4	1
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Production plan

Available assembly hours	740
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Gents basic (full demand) 220 x 1.4 hrs	<u>308</u>
Remaining hours	432

Ladies basic (full demand) 200 x 1.25 hrs	<u>250</u>
Hours remaining	182

Ladies enhanced (full demand) 75 x 1.8 hrs	<u>135</u>
Remaining hours	<u>47</u>

1

This means that 47/3 = 15 Gents enhanced cycles can be produced.

This leaves a shortfall of 80 – 15 = 65 cycles.

1

Profit resulting from plan:						
	LB	LE	GB	GE	Total	
Production	200	75	220	15		
Contribution per cycle	20.00	23.80	37.80	36.40		
Total contribution	4,000	1,785	8,316	546	14,647	
Less fixed costs					<u>6,660</u>	
Profit					7,987	1 (7)

(b) Option 1: Pay overtime to meet demand for gents enhanced cycles:

65 cycles requires 65 x 3 hrs = 195 hours of assembly time.

	£	
Original contribution per cycle	36.40	
Less overtime premium	(22.50)	
Add additional price charged	<u>25.00</u>	
Contribution per cycle for 65 produced in overtime	38.90	1
Total 38.90 x 65	2,528.50	
Additional contribution from increase in selling price Of initial 15 cycles 15 x 25	<u>375.00</u>	1
Total contribution for gents enhanced	2,903.50	

Option 2: Buy in cycles at £270 per cycle:

Buy in price	270.00	
Selling price (increase of £55)	<u>295.00</u>	
Contribution	25.00	
X 65 cycles	1,625.00	1
Additional contribution from increase in selling price Of initial 15 cycles 15 x 55	<u>825.00</u>	1
Total contribution for gents enhanced	2,450.00	

It would therefore be more profitable for the company to pay overtime. 1

(c)

- Is the external supplier reliable?
- Is the external supplier's work to a high quality standard?
- Should penalty clauses be built into the contract?
- Are the suppliers of the external supplier reliable?
- Are there alternative suppliers available should they go bust?
- Will the goodwill of the workforce be lost if they are not given the opportunity to work overtime?
- Will the market stand for the increase in the price necessary to sustain a bought in situation?

1 mark to be awarded for each relevant point to a maximum of 5

- (d)** Linear Programming is a technique that can be used to solve problems where more than one constraint exists. In these cases it is not possible to use an approach based on contribution or additional cost per unit of limiting factor. Linear Programming is a mathematical approach to maximising or minimising a particular outcome given the existence of constraints.

Constraint problems may be solved graphically, by the use of simultaneous equations or by a computer based approach (the simplex method).

1 mark to be awarded for each relevant point to a maximum of 3

(20)