LCCI International Qualifications

London Chamber of Commerce and Industry

www.lcci.org.uk

Management Accounting

Level 3

Model Answers

Series 2 2006 (Code 3023)

edi Education Development International

LCCI International Qualifications are awarded by Education Development International

Management Accounting Level 3
Series 2 2006

How to use this booklet

Model Answers have been developed by Education Development International plc (EDI) to offer additional information and guidance to Centres, teachers and candidates as they prepare for LCCI International Qualifications. The contents of this booklet are divided into 3 elements:

(1)	Questions	– reproduced from the printed examination paper
(2)	Model Answers	– summary of the main points that the Chief Examiner expected to see in the answers to each question in the examination paper, plus a fully worked example or sample answer (where applicable)
(3)	Helpful Hints	– where appropriate, additional guidance relating to individual questions or to examination technique

Teachers and candidates should find this booklet an invaluable teaching tool and an aid to success.

EDI provides Model Answers to help candidates gain a general understanding of the standard required. The general standard of model answers is one that would achieve a Distinction grade. EDI accepts that candidates may offer other answers that could be equally valid.

QUESTION 1

REQUIRED

(a) Briefly discuss human behavioural aspects that may influence both the setting of budget targets and the subsequent task of achieving them.

(7 marks)

(b) Explain how variance analysis, and the study of the relationships between variances, can help to monitor operational performance.

(7 marks)

(c) State a formula for the calculation of each of the following direct material variances:

(i) mix (calculated for each material)

(3 marks)

(ii) yield (calculated in total).

(3 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 1

(a) One purpose of a budgetary planning and control system is to influence positively the behaviour of employees in an organisation. How budgets are set (and used) is likely to have an impact upon behavioural effectiveness i.e. on the extent to which employees are motivated to achieve.

A top-down approach may be taken to budget setting. Essentially this involves the imposition of targets on employees by their superiors. This may have the advantage of setting challenging targets but the danger is that imposition of targets may be de-motivational especially if they are deemed to be very difficult to achieve and tied in to remuneration.

If, on the other hand, employees are involved in the setting of their own budgets/targets they may be more motivated to achieve them. However, it is more likely that less challenging targets are set. Also, slack may be built into the system leading to unnecessary expenditure in order to maintain budget limits from one period to another. Another advantage of participation in budget setting may be a greater awareness of organisational goals, more team spirit and a greater understanding of individual role.

(b) Variance analysis is a tool in the monitoring of the operating performance of a business. The usefulness of variance analysis for management arises from its highlighting of the potential source of a problem (or opportunity).

However, a variance on its own is of limited use. To be useful:

The underlying cause of a variance needs to be identified so that appropriate action can be taken. This will often involve variance investigation. The use of exception reporting of variances, within tolerance limits, avoids time spent investigating minor and/or uncontrollable variances. Corrective action may be required or standards may be found to need updating.

Variances may need to be linked together in order to fully understand the impact of events and the action required. For example a favourable direct material price variance may result from the purchase of poorer quality materials but this may lead to an adverse direct material usage variance through excess wastage.

(c) (i) Mix variance:

[(actual material input quantity – standard quantity for the output produced)
× (standard weighted average cost per input unit – standard cost per input unit)]

or [(actual material input quantity – total actual material input in standard proportions)
× standard cost per input unit]

(ii) Yield variance:

[(actual material input quantity - standard material input quantity for the output produced)
× standard weighted average cost per unit of material input]

or [(actual output - standard output for the actual material input)
× standard weighted average cost per unit of output)

QUESTION 2

A company manufactures and sells a single product. Product costs are:

	£ per unit
Direct materials	15.20
Direct labour	9.36
Variable production overhead	2.74
Fixed production overhead	17.60
Variable selling and administration overhead	3.70
Fixed selling and administration overhead	10.40
	59.00

The company wishes to compare the profits reported by absorption and marginal costing respectively. If absorption costing was to be applied, fixed overheads would be absorbed at the above rates per unit which are based on normal production and sales activity of 20,000 units per period.

In the period just ended, 19,700 units of the product were sold at £65.00 per unit and 20,100 units of the product were manufactured.

REQUIRED

(a) Prepare a profit statement for the period using absorption costing.

(10 marks)

(b) Prepare a profit statement for the period using marginal costing.

(8 marks)

(c) Explain why the profits in (a) and (b) differ. NB No calculations are required.

(2 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 2

(a) **Working:**
Production costs = £44.90 per unit (15.20 + 9.36 + 2.74 + 17.60)
Variable costs = £31.00 per unit (15.20 + 9.36 + 2.74 + 3.70)

Absorption costing:

	£	£	
Sales		1,280,500	(19700 @ 65.00)
Production cost of sales		884,530	(19700 @ 44.90)
Gross profit before adjustment		395,970	(19700 @ 20.10)
Over absorbed fixed production overhead		1,760	(100 @ 17.60)
Gross profit after adjustment		397,730	
Selling and administration costs:			
Variable	72,890		(19700 @ 3.70)
Fixed	208,000		(20000 @ 10.40)
Total		280,890	
Net profit		116,840	

(b) Marginal costing:

Sales		1,280,500	
Variable costs of sales		610,700	(19700 @ 31.00)
Contribution		669,800	(19700 @ 34.00)
Fixed costs:			
Production	352,000		(20000 @ 17.60)
Selling & admin	208,000		
Total		560,000	
Net profit		109,800	

(c) The profits reported by absorption and marginal costing differ if production quantity ≠ sales quantity (in the situation above production > sales by 400 units). This is because of the different valuation of stock. Under marginal costing stock is valued at variable production cost whereas under absorption costing a share of fixed production overheads are also included. In the situation above profit is greater under absorption costing because the fixed production overhead element in stock increases over the period.

QUESTION 3

A company is evaluating an investment project requiring an outlay of £1.4million on new machines (Year 0). The machines would be expected to have a useful working life of six years, with a residual value of £80,000 (Year 6), and would be depreciated on a straight line basis.

Estimates of cost savings (net of depreciation of the new machines) arising from the investment are:

Year	**£'000**
1	20
2	50
3 to 6	80 per annum

REQUIRED

(a) Calculate in relation to the investment project the:

(i) average annual accounting rate of return;

(5 marks)

(ii) payback period;

(6 marks)

(iii) discounted cash flow internal rate of return.

Discount factors:

Year	*5%*	*10%*	*15%*
1	0.952	0.909	0.870
2	0.907	0.826	0.756
3	0.864	0.751	0.658
4	0.823	0.683	0.572
5	0.784	0.621	0.497
6	0.746	0.564	0.432

(6 marks)

(b) State whether the investment project is financially worthwhile if the company's cost of capital is 8% per annum. Explain your reasoning.

(3 marks)

(**Total 20 marks)**

MODEL ANSWER TO QUESTION 3

(a)(i) Accounting rate of return:

$$\frac{\text{Average annual profit}}{\text{Average investment}} \times 100\%$$

$$= \frac{[20 + 50 + (4 \times 80)] \div 6}{[(1400 + 80) \div 2]} \times 100\% = \frac{65}{740} \times 100\% = 8.8\%$$

(ii) Payback:

Cash flow = profit + depreciation
Annual depreciation = (1400 - 80) ÷ 6 = 220

Therefore, cash flow:

Year 1	240	(20 + 220)
Year 2	270	(50 + 220)
Years 3 to 6	300	(80 + 220)

Cumulative cash flow:

End Year 1	(1160)	(1400 - 240)
End Year 2	(890)	(1160 - 270)
End Year 3	(590)	(890 - 300)
End Year 4	(290)	(590 - 300)
End Year 5	10	(290 - 300)

Payback = 5 years

(iii) Total cash inflow = 1790 [240 + 270 + (4 × 300) + 80]
Approximate average discount factor required over 6 years
= 1320 (net investment) ÷ 1790 (total cash inflow) = 0.74 (between 5% & 10% - see discount factors given in the question).

Discounting at 10%:

Year	Cash flow	Factor	Present value
0	(1400)	1.000	(1400)
1	240	0.909	218.2
2	270	0.826	223.0
3 to 6	300	2.619	785.7
6	80	0.564	45.1
	390		(128.0)

Internal rate of return = 0% + {10% × [390 ÷ (390 + 128)]}

= 7.5%

(b) Although the ARR is above 8% this method fails to take account of the time value of money. On the basis of discounted cash flow the investment is not justified financially because the IRR is below the cost of capital.

QUESTION 4

(a) Financial information relating to two investment centres in a company includes:

	Investment Centre X £	*Investment Centre Y* £
At end of Period 10:		
Fixed assets (NBV)	86,370	78,100
Current assets	73,300	32,220
Current liabilities	38,420	21,650
For Period 10:		
Sales	424,375	372,400
Net profit	13,580	14,896

REQUIRED

Calculate, for **each investment centre** for Period 10, the:

(i) net profit margin (%);

(2 marks)

(ii) net asset turnover (number of times);

(3 marks)

(iii) return on capital employed (%).

(3 marks)

(b) In **Investment Centre X** during Period 10:

- 80% of sales were on credit with the remaining 20% being cash sales.
- Average debtors were £52,090.
- Stock of finished goods averaged £55,500.
- The production cost of sales totalled £288,600.

REQUIRED

Calculate the following ratios for **Investment Centre X** in Period 10:

(i) debtor days;

(3 marks)

(ii) stock turnover.

(2 marks)

REQUIRED

(c) Demonstrate the relationship between the three ratios calculated in (a) for each investment centre and comment briefly on the financial performance of each centre on the basis of the ratios calculated in (a) and (b).

(7 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 4

(a)	**Investment Centre X**	**Investment Centre Y**
(i) Net profit margin	3.2% (13580 / 424375 ×100%)	4.0% (14896 / 372400 ×100%)
(ii) Net asset turnover	3.5 times (424375 / 121250)	4.2 times (372400 / 88670)
(iii) Return on capital employed	11.2% (13580 / 121250 × 100%)	16.8% (14896 / 88670 × 100%)

(b) (i) Credit sales = £339,500 (424375 × 0.8)

Debtor days = [(52090 ÷ 339500) × 365] = 56 days

(ii) Stock turnover = (288600 ÷ 55500) = 5.2 times

(c) Net profit % × Net asset turnover = Return on capital employed %

i.e Investment Centre X 3.2% × 3.5 times = 11.2%

Investment Centre Y 4.0% × 4.2 times = 16.8%

Investment Centre Y has a higher (and thus better) return on capital employed than Investment Centre X. This results from better performance both in net profit margin achieved on sales and in the number of times that net assets are turned into sales.

Looking further at Investment Centre X, both debtor days and stock holding seem rather high, and thus working capital is not being managed very efficiently (impacting for example on net asset turnover). However, nothing is known about the particular industry or about previous periods.

QUESTION 5

A business will commence trading on 1 May with capital of £300,000 being introduced. This will be used to purchase fixed assets and to help fund working capital requirements.

A cash budget is required, initially to cover the first four months of trading. Any cash deficit will be funded by bank overdraft. The following estimates have been made:

Fixed assets:

Equipment costing £137,000 will be purchased and paid for in May. The equipment will be depreciated on a straight-line basis over 8 years commencing in May and assuming a disposal value of £5,000 at the end of its working life.

Sales and purchases:

Sales estimates for the first four months of trading are:

May	£75,000
June	£120,000
July	£147,000
August	£162,000

It is expected that 20% of sales will be for cash with the remainder payable two months following sale. The selling price is established by adding a mark-up of 50% to the cost of goods.

An initial stock of goods for resale, costing £100,000, will be purchased on 1 May payable on delivery. Thereafter, all goods sold will be replaced immediately on one month's credit.

Expenses:

Wages and salaries are estimated at £30,000 in May and £36,000 in each month thereafter. Three-quarters of wages are paid in the month with the balance paid in the month following.

Rent and rates, of £42,000 for the year from 1 May, will be paid in May.

Other overheads (excluding depreciation) are estimated at £11,500 per month, payable on one month's credit.

REQUIRED

Prepare:

(a) A cash budget for each of the four months May to August. (12 marks)

(b) A budgeted profit statement for the four-month period, May to August, in total. (4 marks)

(c) A list of the current asset and current liability balances expected at 31 August. (4 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 5

(a) Cash Budget for the period May to August (£'000):

	May	**June**	**July**	**August**
Receipts:				
Capital	300.0	----	----	----
Sales	15.0	24.0	89.4	128.4
	315.0	24.0	89.4	128.4
Payments:				
Equipment	137.0	----	----	----
Goods	100.0	50.0	80.0	98.0
Wages and salaries	22.5	34.5	36.0	36.0
Rent and rates	42.0	----	----	----
Other overheads	----	11.5	11.5	11.5
	301.5	96.0	127.5	145.5
Net cash flow	13.5	(72.0)	(38.1)	(17.1)
Opening cash balance	----	13.5	(58.5)	(96.6)
Closing cash balance	13.5	(58.5)	(96.6)	(113.7)

Workings:

	May	**June**	**July**	**August**
Sales receipts:				
from current month sales	15	24	29.4	32.4
from previous month sales	----	----	60	96
	15	24	89.4	128.4
Purchases of goods (excl initial stock):				
sales × 2/3	50	80	98	108
Payment for goods	----	50	80	98

(b) Budgeted Profit Statement for the period May to August:

	£000	**£000**
Sales		504.0
Cost of goods sold (504 × 2/3)		336.0
Gross profit		168.0
Expenses:		
Wages and salaries	138.0	
Rent and rates (42 × 4/12)	14.0	
Depreciation ([(137 - 5) ÷ 24]	5.5	
Other overheads	46.0	
		203.5
Net loss		(35.5)

MODEL ANSWER TO QUESTION 5 CONTINUED

(c) Current assets and current liabilities at 31 August:

	£000	£000
Current assets:		
Stock	100.0	
Debtors	247.2	
Prepayment	28.0	375.2
Current liabilities:		
Creditors		
for goods	108.0	
for wages & salaries	9.0	
for other overheads	11.5	
	128.5	
Bank overdraft	113.7	242.2

Workings:
Debtors = 80% of July & August sales
Prepayment = two thirds of year's expenditure
Creditors:
for goods = purchases in August
for wages & salaries = 25% of wages and salaries in August
for other overheads = incurred in August

QUESTION 6

A company manufactures and sells three products. Selling prices and variable costs are:

	Product X £ per unit	Product Y £ per unit	Product Z £ per unit
Selling price	13.80	12.00	6.50
Variable costs:			
Direct materials	3.75	3.00	1.75
Direct labour	2.25	2.00	1.00
Production overhead	0.90	0.80	0.40
Non-production overhead	1.40	1.20	0.65

Sales demand per period is:

Product X	9,000 units
Product Y	11,000 units
Product Z	16,000 units

Fixed overheads per period are:

Production	£96,000
Non-production	£32,600

REQUIRED

(a) Based on the above sales mix:

(i) Calculate the overall contribution/sales (C/S) ratio.

(6 marks)

(ii) **Using the graph paper provided**, prepare a profit/volume (P/V) chart for the company with sales up to £400,000 in a period.

(7 marks)

Direct labour, all paid at £8.00 per hour, may be limited to a total of 7,000 hours in the next period.

REQUIRED

(b) Determine the number of units of each product that should be manufactured and sold in the next period, if direct labour is limited to 7,000 hours, in order to maximise profit.

(7 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 6

(a) (i) Contribution/sales (C/S) ratio:

	Product X	**Product Y**	**Product Z**
Selling price (£/unit)	13.80	12.00	6.50
Variable costs (£/unit)	8.30	7.00	3.80
Contribution (£/unit)	5.50	5.00	2.70
Sales revenue (£'000)	124.2 (9000 × 13.8)	132.0 (11000 × 12.0)	104.0 (16000 × 6.5)
Contribution (£'000)	49.5 (9000 × 5.5)	55.0 (11000 × 5.0)	43.2 (16000 × 2.7)

Total sales = £360,200
Total contribution = £147,700
Overall C/S ratio = 41.0% [(147700 ÷ 360200) × 100%]

