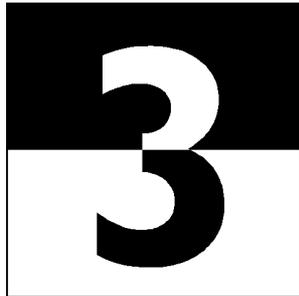


Examiner's Report and Model Answers for

Management Accounting



THIRD LEVEL

Series 4 (Code 3023) 2000



LCCI Examinations Board

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Management Accounting Third Level

Series 4 2000

How to use this booklet

Examiners' Reports and Model Answers have been developed by LCCIEB to offer additional information and guidance to Centres, teachers and candidates as they prepare for LCCIEB examinations. The contents of this booklet are divided into 5 elements:

- (1) General – assessment of overall candidate performance in this examination, providing general guidance where it applies across the examination as a whole
- (2) Questions – reproduced from the printed examination paper
- (3) Model Answers – summary of the main points that the Chief Examiner expected to see in the answers to each question in the examination paper
- (4) Examiner's Report – constructive analysis of candidate error, areas of weakness and other comments that apply to each question in the examination paper
- (5) 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.

The London Chamber of Commerce and Industry Examinations Board provides Model Answers to help candidates gain a general understanding of the standard required. The Board accepts that candidates may offer other answers that could be equally valid.

Note

LCCIEB reserves the right not to produce an Examiner's Report, either for an examination paper as a whole or for individual questions, if too few candidates were involved to make an Examiner's Report meaningful.

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Management Accounting Third Level Series 4 2000

GENERAL COMMENTS

The results achieved overall were somewhat disappointing with excellent performances at several Centres offset by poor results at others.

Management Accounting Third Level

Series 4 2000

QUESTION 1

REQUIRED

- (a) An expanding business which is budgeting high profits may produce a cash budget indicating a deficit. Explain why this is so. (7 marks)
- (b) Outline three objectives of budgetary planning and control systems. (7 marks)
- (c) State the formula used in cost - volume - profit analysis to calculate **each** of the following:
- (i) the break-even point in sales revenue
 - (ii) the break-even point in sales units
 - (iii) the sales revenue required to achieve a target profit.

(6 marks)

(Total 20 marks)

Model Answer to Question 1

- (a) Period profit is based upon the matching of revenue from sales with those resources utilised in generating the sales, and not upon cash receipts and payments.

Factors contributing to a cash deficit during a period of high profit could include:

- (i) investment in fixed assets (in excess of depreciation)
 - (ii) increase in stock (possibly to support an increase in sales)
 - (iii) increase in debtors (also likely to result from an increase in activity)
 - (iv) decrease in creditors (but less likely if stock increases)
 - (v) repayment of loans
 - (vi) a deficit cash position at the start of the period.
- (b) The objectives of budgetary planning and control systems are:
- (i) to force management to think ahead about future events and the best way to achieve objectives
 - (ii) to provide a clear plan of expected future progress towards objectives
 - (iii) to communicate to personnel within an organisation what is required of them and to set them targets to achieve
 - (iv) to co-ordinate plans throughout an organisation in order to ensure the availability of the required resources and their efficient acquisition and utilisation
 - (v) to enable better control through the comparison of actual results against budget and investigation of variances.
- (c) (i) Break-even point (sales revenue) = $\frac{\text{fixed costs}}{\text{contribution/sales ratio}}$
- (ii) Break-even point (sales units) = $\frac{\text{fixed costs}}{\text{contribution per unit}}$
- (iii) Sales revenue for target profit = $\frac{\text{fixed costs} + \text{target profit}}{\text{contribution/sales ratio}}$

Examiner's Report on Question 1

This narrative question covered various aspects of the syllabus, especially on the subject of budgeting. The question was fairly unpopular and not well answered, apart from part (c).

In part (a), very few candidates had much appreciation of the difference between profit measurement and the inflow/outflow of cash. A relatively small number mentioned the purchase of fixed assets, and a few the impact of credit on debtors versus sales, and creditors versus purchases, but answers were generally weak and not relevant.

Part (b) was also poorly answered with the vast majority of candidates failing to identify any objectives of budgeting. Frequently a list of budgets was provided or there was very vague use of the words 'planning' and 'control' in candidates' answers.

The majority of candidates were able to provide appropriate formulae in answer to part (c) although there was some confusion between the use of contribution per unit and the contribution/sales ratio.

QUESTION 2

A company produces and sells a single product. Actual results for a period include:

Sales revenue	£481,850	
Sales units	2,740	
Production units	2,800	
Direct labour	£162,250	(19,908 hours)
Variable production overhead	£49,210	

Budgeted and standard data for the period include:

Budgeted sales and production units	2,700
Standard selling price per unit	£175
Standard costs per unit of product:	
Direct labour: 7.2 hours at £8.00 per hour	
Variable production overhead: £2.50 per direct labour hour	
Standard contribution: £45.00 per unit of product	

REQUIRED

- (a) Calculate **six** variances for the period from the above data. (16 marks)
- (b) Outline **two** possible causes of the labour efficiency variance. (4 marks)
- (Total 20 marks)**

Model Answer to Question 2

- (a) Sales volume variance = $(2,740 - 2,700) \times 45 = £1,800$ Fav
- Selling price variance = $£481,850 - (2,740 \times 175) = £2,350$ Fav
- Direct labour rate = $£162,250 - (19,908 \times 8) = £2,986$ Adv
- Direct labour efficiency = $(19,908 - (2,800 \times 7.2)) \times 8 = £2,016$ Fav
- Variable overhead expenditure = $£49,210 - (19,908 \times 2.50) = £560$ Fav
- Variable overhead efficiency = $(19,908 - (2,800 \times 7.2)) \times 2.50 = £630$ Fav
- (b) The labour efficiency variance is the direct result of the direct labour hours worked being 1.25% below (better than) the standard time allowed. This could have been caused by:
- the use of better quality material than standard
 - more efficient working than normal
 - the standard not reflecting current operating conditions.

Examiner's Report on Question 2

Variance analysis within a standard costing system was tested in this question. Well prepared candidates frequently scored high marks. The main errors made by these candidates were: failure to identify the profit impact of the sales volume variance, small differences due to rounding, and occasional errors in annotation (description of variance or favourable/adverse impact).

Amongst less well prepared candidates there was frequent confusion in quoting material price and usage variances for attempts made on the sales variances. Also the volume and efficiency variances were often incorrect due to misuse of budget quantities or confusion between sales and production volumes.

Model Answer to Question 3

(a) Contribution = 1,700 – 938 (400 + 240 + 100 + 126 + 72) = £762k

$$\text{Contribution/sales ratio} = \frac{762}{1,700} \times 100\% = \underline{44.8\%}$$

	£000	£000
(b) Sales (£1,700k x 1.4 x $\frac{\underline{£7.70}}{\underline{£8.50}}$)		2,156
Costs:		
Raw materials (£400k x 1.4 x 0.975)	546	
Direct labour (£240k x $\frac{250}{200}$ x 1.02 + £240k x $\frac{30}{200}$ x 1.02 x 1.25)	351.9	
Variable indirect production costs (£100k x 1.4)	140	
Variable selling costs (£126k x 1.4)	176.4	
Variable distribution costs (£72k x 1.4)	<u>100.8</u>	<u>1,315.1</u>
Contribution		840.9
Fixed costs:		
Production (£235k x 1.06)	249.1	
Administration (£156k x 1.06)	165.36	
Selling (£88k x 1.06)	93.28	
Distribution (£41k x 1.06)	<u>43.46</u>	<u>551.2</u>
Net Profit		<u>289.7</u>

Workings:

$$\text{Year just ended} = \frac{\underline{£1,700k}}{\underline{£8.50}} = 200\text{k units}$$

$$\text{Budget year} = 200\text{k} \times 1.4 = 280\text{k units}$$

$$\text{Output in overtime hours} = 30\text{k units}$$

$$\text{Output in normal hours} = 250\text{k units}$$

(c) Change in budgeted profit = 546 x 0.02 = £10,920 increase in budgeted profit.

Examiner's Report on Question 3

This question required candidates to manipulate the data provided, which focused on cost behaviour and marginal costing in the context of volume, inflation and efficiency changes. Pass marks were gained on this question by the majority of candidates with many gaining high marks.

Nevertheless, much confusion was demonstrated in parts (a) and (b) as to what costs to include in the calculation of contribution. Candidates should note that contribution is sales less all variable costs (regardless of the function of the business in which they are incurred). A number of candidates did the calculations in (a) based on the budget year figures rather than the year just ending.

In part (b), reasonable attempts were usually made to establish the budgeted sales value, and to calculate the raw material and direct labour costs, but errors were common. Many missed the correct placing of the word 'contribution' or omitted it altogether.

QUESTION 4

A company is considering the introduction of a new product which would require an investment of £100,000 in new manufacturing equipment. The product would have a selling price of £60 per unit and a contribution margin of 42%. No changes in either selling prices or variable cost prices are anticipated over the five year life of the investment.

Market research indicates the following probabilities relating to demand for the new product in the first year:

Sales units	Probability
7,000	10%
8,000	30%
9,000	45%
10,000	15%

Sales volume would be expected to grow at a rate of 10% per annum.

Incremental fixed costs resulting from the investment are estimated at £225,000 per annum, increasing to £250,000 per annum in years 4 and 5. The investment would be expected to have a terminal value of £5,000 at the end of its five year life. The cost of capital is 10% per annum. Discount factors at 10% are:

Year 1, 0.909; Year 2, 0.826; Year 3, 0.751; Year 4, 0.683; Year 5, 0.621

REQUIRED

- (a) Calculate the expected sales value of the new product for each of the five years. (5 marks)
- (b) Calculate the expected net present value of the new product investment opportunity. (10 marks)
- (c) Calculate an approximate internal rate of return for the investment (to the nearest percentage) using the net present values at 0% (ie undiscounted) and 10%. (5 marks)

(Total 20 marks)

Model Answer to Question 4

(a) Sales revenue:

Year 1	7,000 x 0.1 =	700	
	8,000 x 0.3 =	2,400	
	9,000 x 0.45 =	4,050	
	10,000 x 0.15 =	<u>1,500</u>	
		8,650 x 60 =	£519,000
Year 2	519,000 x 1.1		= £570,900
Year 3	570,900 x 1.1		= £627,990 (or 519,000 x 1.1 ²)
Year 4	627,990 x 1.1		= £690,789 (or 519,000 x 1.1 ³)
Year 5	690,789 x 1.1		= £759,868 (or 519,000 x 1.1 ⁴)

(b) $Sales \times C/S \text{ ratio} - Fixed \text{ costs} = Cash \text{ inflow} \times Disc \text{ factor } 10\% = Present \text{ value}$

Yr 1	£519,000 x	0.42	-	£225,000	=	(£7,020)	x	0.909	=	(£6,381)
Yr 2	£570,900 x	0.42	-	£225,000	=	£14,778	x	0.826	=	£12,207
Yr 3	£627,990 x	0.42	-	£225,000	=	£38,756	x	0.751	=	£29,106
Yr 4	£690,789 x	0.42	-	£250,000	=	£40,131	x	0.683	=	£27,409
Yr 5	£759,868 x	0.42	-	£250,000	=	<u>£69,145</u>	x	0.621	=	<u>£42,939</u>
						<u>£155,790</u>				<u>£105,280</u>

Net investment:

Yr 0	(£100,000) x	1.000	=	(£100,000)
Yr 5	£5,000 x	0.621	=	<u>£3,105</u>
				<u>(£96,895)</u> Present value

Net present value (NPV at 10% = 105,280 - 96,895 = £8,385)

(c) NPV at 0% (undiscounted) = 155,790 - 95,000 = £60,790

$$\text{Approximate internal rate of return (IRR)} = 0\% + 10\% \left(\frac{60,790}{60,790 - 8,385} \right)$$

$$= \underline{12\%}$$

Examiner's Report on Question 4

This question covered the establishment of cash flows, including the use of probabilities to determine expected value, and the calculation of net present values and the internal rate of return percentage. Answers were frequently disappointing displaying a very limited knowledge of this subject.

In part (a), many candidates failed to score the full 5 marks. The main errors were to ignore the probability factors, and frequently in addition to quote the annual sales as 34,000 units, and/or to fail to apply 10% compound for the annual sales growth.

Many candidates failed to provide any link between the annual sales calculated in part (a) and the cash flows required in part (b). The fixed costs were frequently identified in (b) as the sole cash flow, and were wrongly treated as an inflow, with sales and contribution completely ignored. A cost of capital of £10,000 per annum was sometimes included as a cash outflow, which was then discounted along with the rest of the cash flows thus double counting the impact of the finance cost. There was in many cases a lack of workings to indicate the source of the cash flow estimates.

The answers to part (c) clearly indicated that many candidates still have difficulty with the application of the internal rate of return (IRR) formula. Little awareness was evident of the relationship between a positive and a negative net present value, or of the IRR% in relation to the cost of capital. NB for example, a positive NPV at the cost of capital must result in an IRR% above the cost of capital. Some candidates even stated that it is not possible to calculate the IRR% from two positive NPV values. Candidates should look carefully at the answer provided. In addition, many were unable to calculate the NPV at 0% (ie undiscounted). It is simply the addition of the undiscounted cash flows but many candidates either excluded the investment sum (outflow in Year 0) or excluded the cash inflows and thus had an NPV of (£100,000) at 0%.

QUESTION 5

A company is working at full labour capacity and will be unable to recruit additional skilled labour for the foreseeable future.

A component currently manufactured by the company has the following unit costs:

	£ per unit
Direct materials	1.60
Direct labour (0.25 hours at £5.60 per hour)	1.40
Variable overheads	0.60
Fixed overheads	<u>1.90</u>
	<u>5.50</u>

The component could be obtained from an outside supplier for £4.50 per unit.

If the component is not manufactured by the company, the direct labour released could be employed in increasing the output (and sales) of an existing product (Product A) which is sold for £35 and which has the following unit costs:

	£ per unit
Direct materials	9.00
Direct labour (2 hours at £5.60 per hour)	11.20
Variable overheads	3.80
Fixed overheads	<u>11.00</u>
	<u>35.00</u>

The production director believes that the component must continue to be manufactured by the company as special equipment was installed only a year ago. The special equipment cost £65,000 but has no resale value or alternative use.

REQUIRED

- (a) State, with supporting calculations, whether the component should continue to be manufactured by the company, or whether it should be bought-in, whilst labour remains in short supply. (11 marks)
- (b) Comment upon the production director's views. (5 marks)
- (c) Calculate the additional profit that would result if an additional hour of skilled labour could be made available. (4 marks)

(Total 20 marks)

Model Answer to Question 5

(a) Bought-in price of component	£4.50/unit (to save 0.25 labour hours)
Variable costs of manufacture	<u>£3.60/unit</u>
Extra cost of buying-in	(£0.90)/unit
Extra contribution if bought-in	<u>£1.375/unit</u>
Net gain if bought-in	<u>£0.475/unit</u>

Workings:

$$\begin{aligned} \text{Extra contribution if component bought-in} &= \text{£35 selling price} \\ &\text{less } \underline{\text{£24 variable costs}} \\ &= \underline{\text{£11 per unit of Product A}} \\ &\times \frac{\underline{\text{0.25 hours}}}{\text{2 hours}} \\ &= \text{£1.375 per unit of component} \end{aligned}$$

- (b) The reason given by the production director should not be used as justification for continued manufacture of the component. The key issue is whether better use could be made of the scarce labour. The fact that the investment cost of £65,000 is a sunk cost, and that the equipment has no resale value or alternative use, does increase the attractiveness of continuing to manufacture the component. However, despite this, analysis indicates that the company would be better off buying-in the component and putting the scarce labour to an alternative use.
- (c) Additional profit = contribution from Product A £11 per unit
÷ 2 hours per unit
= £5.50 per hour

Examiner's Report on Question 5

This question tested candidates' ability to identify relevant costs, including opportunity costs and benefits. It was the least popular question and was poorly answered.

In part (a), there were a few reasonable attempts which ignored the fixed costs and also treated the costs of the special equipment correctly as a sunk cost. The majority of attempts did not pick out the relevant costs, and often failed to identify increased production of Product A as an opportunity that would be enabled by buying-in the component.

In part (b), many candidates wrongly agreed with the Production Director's views regarding the special equipment. It was quite common to simply see the words repeated from the question.

QUESTION 6

A company has a manufacturing process in which materials are introduced, and lose weight, at the start of processing. The following data relates to the month just ended:

	Costs (£)	
Raw materials	150,000	
Processing costs	192,000	
Opening work-in-progress:		
materials	40,000	
processing costs	25,800	
		Quantities (kg)
Work completed	320,000	
Raw material input	400,000	
Opening work-in-progress	80,000	(half complete re. processing costs)
Closing work-in-progress	60,000	(two-thirds complete re. processing costs)

REQUIRED

- (a) Determine, using the weighted average cost method:
- (i) the cost per kg for the process for the month (8 marks)
 - (ii) the value of work completed during the month (2 marks)
 - (iii) the value of the work-in-progress at the end of the month. (3 marks)
- (b) Determine, using the FIFO method, the cost per kg of production in the period. (7 marks)

(Total 20 marks)

Model Answer to Question 6

(a)	Materials	Processing costs
Equivalent units (kg):		
Work completed	320,000	320,000
Closing work-in-progress	60,000	40,000 (60,000 x 0.66)
	<u>380,000</u>	<u>360,000</u>
Total costs (£):		
Opening work-in-progress	40,000	25,800
Period costs	150,000	192,000
	<u>190,000</u>	<u>217,800</u>
 (i) Cost per kg =	 £190,000 380,000	 £217,800 360,000
	 = <u>£0.50/kg</u>	 = <u>£0.605/kg</u> Total = £1.105/kg
 (ii) Value of work completed: 320,000 kg x £1.105/kg =	<u>£353,600</u>	
 (iii) Value of closing work-in-progress:		
Materials 60,000 kg x £0.50/kg =	£30,000	
Processing costs 40,000 kg x £0.605/kg =	<u>£24,200</u>	
	<u>£54,200</u>	

(b)	Materials	Processing costs
Equivalent units (kg):		
Work completed	320,000	320,000
Closing work-in-progress	60,000	40,000 (60,000 x 0.66)
Opening work-in-progress	<u>(80,000)</u>	<u>(40,000)</u> (80,000 x 0.5)
	<u>300,000</u>	<u>320,000</u>
 Period costs (£)	 150,000	 192,000
 Cost per kg =	 £150,000 300,000	 £192,000 320,000
	 = <u>£0.50/kg</u>	 = <u>£0.60/kg</u> Total = <u>£1.10/kg</u>

Examiner's Report on Question 6

This question was on the subject of process costing, requiring the use of equivalent units and the application of both weighted average and FIFO pricing methods. Many candidates produced good answers to the question and scored high marks as a result.

In both parts of the question the inclusion of losses as abnormal was a not uncommon error. Some other candidates recognised the losses as normal but sought to place a value on them rather than simply allow the cost to be absorbed by the good output. At some Centres, costs per equivalent unit were not calculated for each separate element of costs and the difference between weighted average and FIFO (with the opening work-in-progress) was not appreciated. Mistakes were also not uncommon in the conversion of opening and closing work-in-progress to equivalent units.

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