

Cost Accounting Level 3



International
Qualifications from EDI

Model Answers Series 2 2009 (3016)

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Series 2 2009

How to use this booklet

Model Answers have been developed by 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.

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QUESTION 1

A company, which produces a single product and uses a standard costing system, has prepared the following budgeted information for month 1

Sales volume	1,000 units
Selling price	£80 per unit
Production	1,050 units
Direct material cost per unit	£5 per unit
Direct labour cost per unit	£6 per unit
Variable production overhead cost per unit	£2 per unit
Fixed production overhead cost per unit	£25 per unit

Fixed and variable overheads are absorbed at a predetermined rate based on production unit output. No stocks existed at the start of month 1.

Actual sales, production and costs relating to the period were as follows:

Sales volume	900 units
Revenue from sales	£76,500
Production	1,100 units
Direct material, purchased and used.	£6,000
Direct labour	£5,600
Variable production overhead	£2,800
Fixed production overhead	£28,250

REQUIRED

(a) Calculate for month 1:

- (i) the budgeted gross profit
- (ii) the actual gross profit.

(6 marks)

(b) Calculate the following variances:

- (i) sales price
- (ii) sales volume profit
- (iii) total direct material
- (iv) total direct labour
- (v) total variable production overhead
- (vi) fixed production overhead expenditure
- (vii) fixed production overhead volume

(11 marks)

(c) Reconcile the budgeted gross profit with the actual gross profit using the variances calculated in part (b).

(3 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 1

(a) Budgeted Gross profit

	£	
(i) Sales (1,000 x £80)	80,000	
Production costs (1,000 x £38)	<u>38,000</u>	
Gross Profit	<u>42,000</u>	(2)

Workings

Standard production cost per unit = (5+6+2+25) = £38

(ii) Actual gross profit

	£	£
Sales		76,500
Direct material	6,000	
Direct labour	5,600	
Variable production overheads	2,800	
Fixed production overheads	<u>28,250</u>	
	42,650	
Less closing stock	<u>7,600</u>	
Production cost of sales		<u>35,050</u>
Gross profit		<u>41,450</u>

Workings

Closing stock (1,100 - 900) x £38 = £7,600

(6 marks)

(b) Variances

		£
(i) Sales price	(900 x £80) - £76,500	4,500F
(ii) Sales volume profit	(1,000 - 900) x (£42,000/1,000)	4,200A
(iii) Direct material	(1,100 x £5) - £6,000	500A
(iv) Direct labour	(1,100 x £6) - £5,600	1,000F
(v) Variable overhead	(1,100 x £2) - £2,800	600A
(vi) Fixed o/h expenditure	(1,050 x £25) - £28,250	2,000A
(vii) Fixed o/h volume	(1,050 - 1,100) x £25	1,250F

(11 marks)

(c) Profit Reconciliation

			£
Budgeted profit			42,000
Sales variances:			
Sales price	4,500F		
Sales volume profit	<u>4,200A</u>	300F	
Cost variances:			
Direct material	500A		
Direct labour	1,000F		
Variable overhead	600A		
Fixed o/h expenditure	2,000A		
Fixed o/h volume	<u>1,250F</u>	<u>850A</u>	<u>550A</u>
Actual profit			<u>41,450</u>

QUESTION 2

Makit Ltd purchases a number of different components from an outside supplier. The following information relates to three of these components.

Component X

Daily usage varies between 100 and 120 units
Lead time for delivery varies between 7 and 13 days
Order quantity is 2,500 units.

Component Y

Annual usage is 2,500 units (evenly distributed through the year)
Cost of component is £8 per unit
Ordering costs are £48 per order
Stock holding costs are 12% of the component cost per annum
No safety stock is held.

Component Z

Balance in stores is currently 2,500 units
Stock on order is 4,000 units
Allocated stock is 1,100 units.

REQUIRED

- (a) For component X calculate:
- (i) the reorder level
 - (ii) the minimum and maximum stock control levels. (6 marks)
- (b) For component Y calculate:
- (i) the economic order quantity
 - (ii) the total annual cost (if orders are placed in this quantity). (8 marks)
- (c) For component Z, calculate the free stock currently available. (2 marks)
- (d) Briefly explain the meaning of:
- (i) Reorder level
 - (ii) Allocated stock
 - (iii) Free stock. (4 marks)
- (Total 20 marks)**

MODEL ANSWER TO QUESTION 2

(a) Component X

(i) Re-order level

$$\begin{aligned} &= \text{Maximum usage} \times \text{maximum lead time} \\ &= 120 \times 13 = \quad \quad \quad \mathbf{1,560 \text{ units}} \end{aligned}$$

(ii) Minimum stock control level

$$\begin{aligned} &= \text{Re-order level} - (\text{average usage} \times \text{average lead time}) \\ &= 1,560 - (110 \times 10) = \quad \quad \quad \mathbf{460 \text{ units}} \end{aligned}$$

Maximum stock control level

$$\begin{aligned} &= \text{Re-order level} - (\text{minimum usage} \times \text{minimum lead time}) \\ &\quad + \text{re-order quantity} \\ &= 1,560 - (100 \times 7) + 2,500 = \quad \quad \quad \mathbf{3,360 \text{ units}} \end{aligned}$$

(b) Component Y

(i) Economic order quantity

$$\begin{aligned} \text{EOQ} &= \sqrt{\frac{2 \times C_o \times D}{C_h}} \\ &= \sqrt{\frac{2 \times 2,500 \times 48}{8 \times 0.12}} \\ &= \quad \quad \quad \mathbf{500 \text{ units}} \end{aligned}$$

(ii) Total annual cost

			(£)
Ordering costs	$(2,500 / 500) \times £48$	=	240
Stock holding costs	$(500 / 2) \times £8 \times 0.12$	=	240
Cost of components	$2,500 \times £8$	=	<u>20,000</u>
Total annual cost			<u>20,480</u>

(c) Component Z

Free stock

$$\begin{aligned} &= \text{Stock balance} - \text{allocated stock} + \text{stock on order} \\ &= 2,500 - 1,100 + 4,000 \\ &= \quad \quad \quad \mathbf{5,400 \text{ units}} \end{aligned}$$

(d) (i) Re-order level

The stock level at which the business re-orders more items.

(ii) Allocated stock

Stock that has been scheduled for use.

(iii) Free stock

Stock that is available for reservation or allocation, (or immediate issue from stock, without prior reservation, provided there is physical stock in stores).

QUESTION 3

A company manufactures and sells a single product. The following information is available for the period April to September year 9.

Sales:

The budgeted sales, in units, are as follows:

April	May	June	July	August	September
960	1040	1080	1120	1120	1080

The standard selling price is £12.50 per unit. 40% of the sales are expected to be cash sales with the remaining customers allowed one month's credit. It is estimated that 5% of credit customers will be bad debts.

Production:

The company manufactures 75% of the budgeted sales during the month before sale and the remaining 25% in the month of sale.

Costs:

- (1) Direct materials will be £5 per unit of finished product. Materials will be purchased in the month prior to their use in production, and paid for in the month following purchase.
- (2) Direct labour will be paid at a rate of £2 per unit of finished product, payable in the month of production. A bonus payment of £1 per unit will be paid on all additional monthly production in excess of 1000 units, paid in the month following production.
- (3) Fixed production overheads of £20,000, including depreciation of £6,800, are budgeted for the year ahead. These are budgeted to be the same each month and, apart from depreciation, are payable in the month they are incurred.
- (4) Variable selling expenses are expected to be £1.50 per unit payable in the month of sale.
- (5) Fixed administration overheads of £6,000 for the year ahead are budgeted to be the same per month and payable in the month they are incurred.

Cash:

The company expect to have a bank overdraft balance of £2,500 at the start of May year 9.

REQUIRED

Prepare the following budgets for each of months May to July:

- (a) Production (units). (3 marks)
 - (b) Material purchases (£s). (2 marks)
 - (c) Labour cost. (3 marks)
 - (d) Cash. (12 marks)
- (Total 20 marks)**

MODEL ANSWER TO QUESTION 3

(a) Production Budget

	April	May	June	July	Aug	Sept
Sales (units)	<u>960</u>	<u>1,040</u>	<u>1,080</u>	<u>1,120</u>	<u>1,120</u>	<u>1,080</u>
Production (units)						
75% of following month's sales	780	810	840	840	810	
25% of current month's sales	<u>240</u>	<u>260</u>	<u>270</u>	<u>280</u>	<u>280</u>	
Production budget	<u>1,020</u>	<u>1,070</u>	<u>1,110</u>	<u>1,120</u>	<u>1,090</u>	

(b) Material Purchases Budget

Material purchases (production units)	1,110	1,120	1,090
Material purchases budget (£)	5,550	5,600	5,450

(c) Labour Cost Budget

Production output (units)	<u>1,070</u>	<u>1,110</u>	<u>1,120</u>
Basic cost (@ £2 per unit)	2,140	2,220	2,240
Bonus cost (@ £1 per unit in excess of 1000 units)	<u>70</u>	<u>110</u>	<u>120</u>
Labour cost budget (£)	<u>2,210</u>	<u>2,330</u>	<u>2,360</u>

(d) Cash Budget

	May	June	July
Receipts			
Sales	<u>12,040</u>	<u>12,810</u>	<u>13,295</u>
Payments			
Material	5,350	5,550	5,600
Labour	2,160	2,290	2,350
Fixed production overheads	1,100	1,100	1,100
Variable selling expenses	1,560	1,620	1,680
Fixed administration overheads	<u>500</u>	<u>500</u>	<u>500</u>
	<u>10,670</u>	<u>11,060</u>	<u>11,230</u>
Net cash flow	1,370	1,750	2,065
Opening bank balance	<u>(2,500)</u>	<u>(1,130)</u>	<u>620</u>
Closing bank balance	<u>(1,130)</u>	<u>620</u>	<u>2,685</u>

Cash budget workings

Receipts - Sales

	Sales (£)	Receipts (£)		Total (£)
		Cash (40%)	Credit (60%)	Bad debts (5%)
April	12,000			
May	13,000	5,200	7,200	(360)
June	13,500	5,400	7,800	(390)
July	14,000	5,600	8,100	(405)
				12,040
				12,810
				13,295

MODEL ANSWER TO QUESTION 3 CONTINUED

Cash budget workings continued

Payments - Materials

	Purchases(£)	Payments(£)
April	5,350 (1,070 x 5)	
May	5,550	5,350
June	5,600	5,550
July	5,450	5,600

Payments - Labour

	Output (units)	Basic pay(£)	Bonus pay(£)	Total pay(£)
April	1,020			
May	1,070	2,140	20	2,160
June	1,110	2,220	70	2,290
July	1,120	2,240	110	2,350

Payments - Fixed production overheads

Total overheads	20,000
Less depreciation	<u>6,800</u>
Payment per year	13,200
Payment per month	1,100

Payments - Variable selling expenses

	Sales (units)	Expense (£)
May	1,040	1,560
June	1,080	1,620
July	1,120	1,680

QUESTION 4

Quality Products Ltd, which produces a single component for the motor industry, has just completed its first year of trading. The summary profit and loss account for the year, prepared on the absorption costing basis, is set out below:

	£	£
Sales		190,000
Production cost of sales:		
Cost of production:		
Direct material	32,000	
Direct labour	41,000	
Variable overhead	22,000	
Fixed overhead	<u>33,000</u>	
	128,000	
Less closing stock	<u>6,400</u>	
		<u>121,600</u>
Gross profit		<u>68,400</u>
Selling and administration costs:		
Variable	3,800	
Fixed	<u>28,500</u>	
		<u>32,300</u>
Net profit		<u>36,100</u>

10,000 units were manufactured in the first year and 9,500 units were sold.

Budgeted data for the second year of trading is as follows:

Sales units	10,600
Production units	11,000
Selling price	£22.00 per unit
Direct material	£3.40 per unit
Direct labour (0.50 hours @ £9 per hour)	£4.50 per unit
Variable production overheads absorbed @	£4.50 per direct labour hour
Fixed production overheads	£35,200
Variable selling and administration costs	£4,400
Fixed selling and administration costs	£33,000

REQUIRED

(a) Prepare a budgeted profit and loss account for Year 2 using the:

- (i) Absorption costing basis
- (ii) Marginal costing basis.

(15 marks)

(b) Explain the difference between the profits calculated in part (a). Your explanation should be supported with calculations.

(5 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 4

(a) (i) Budgeted Profit and Loss Account, Year 2 – Absorption costing basis

	£	£
Sales		233,200
Production cost of sales		
Cost of production		
Direct material	37,400	
Direct labour	49,500	
Variable overheads	24,750	
Fixed overheads	<u>35,200</u>	
	146,850	
Add opening stock	6,400	
Less closing stock	<u>12,015</u>	
		<u>141,235</u>
Gross profit		91,965
Selling and admin costs:		
Variable	4,400	
Fixed	<u>33,000</u>	
		<u>37,400</u>
Net profit		<u>54,565</u>

Workings:

<u>Closing Stock (units)</u>		
Opening stock (10,000 – 9,500)	500	
Add production	11,000	
Less sales	<u>10,600</u>	
Closing stock (units)	<u>900</u>	
<u>Closing stock (valuation)</u>		
= £146,850 x 900 / 11,000	£12,015	

(ii) Budgeted Profit and Loss Account Year 2 – Marginal costing basis

	£	£
Sales		233,200
Variable cost of sales		
Direct material	37,400	
Direct labour	49,500	
Variable overheads	<u>24,750</u>	
	111,650	
Add opening stock	4,750	
Less closing stock	<u>9,135</u>	
Production cost of sales	107,265	
Selling and admin costs	<u>4,400</u>	
		<u>111,665</u>
Contribution		121,535
Fixed costs		
Production overheads	35,200	
Selling and admin costs	<u>33,000</u>	
		<u>68,200</u>
Net profit		<u>53,335</u>

Workings

Opening Stock = £95,000 x 500 / 10,000 = £4,750
 Closing Stock = £111,650 x 900 / 11,000 = £9,135

MODEL ANSWER TO QUESTION 4 CONTINUED

- (b) The difference in profits is due to the different values of both opening and closing stock. Under the absorption method the fixed production overhead is carried forward in the value of the opening and closing stock whereas in the marginal method it is not.

Reconciliation of profits	£
Absorption profit	54,565
Less fixed element in closing stock	2,880
Add fixed element in opening stock	<u>1,650</u>
Marginal profit	<u>53,335</u>

Workings

$$\begin{aligned}\text{Fixed element (closing stock)} &= \text{£}35,200 \times 900 / 11,000 \\ &= \text{£}2,880\end{aligned}$$

$$\begin{aligned}\text{Fixed element (opening stock)} &= \text{£}33,000 \times 500 / 10,000 \\ &= \text{£}1,650\end{aligned}$$

QUESTION 5

Direct Products Ltd manufactures and sells four products, A, B, C and D. Due to a limit on the labour capacity of 1,200 direct hours in the next period the company considers it will not be able to meet its anticipated sales demand and is therefore considering buying in some units from an outside supplier to make up any shortfall. There is no finished goods stock.

The following budgeted information has been provided for the next period.

	A	B	C	D
Sales demand (units)	600	200	300	200
Selling price per unit	£25	£40	£30	£50
Direct material (per unit)	£2	£4	£3	£4
Direct labour hours (per unit)	1	1.5	1	2

Direct labour is budgeted at £10 per direct labour hour.

Variable overheads are budgeted at £2 per direct labour hour.

Fixed production overheads absorbed at a rate of £8.00 per unit produced are expected to be £10,400.

An outside supplier has quoted £19, £28, £21 and £37 per unit respectively for products A, B, C and D.

- (a) Advise the company on which products, and how many, it should buy in order to achieve the budgeted output at minimum cost. Support your advice with calculations.

(14 marks)

- (b) Produce a budgeted manufacturing and trading account for the period.

(6 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 5

(a) Hours required to make budgeted production

Product A	600 x 1	=	600
Product B	200 x 1.5	=	300
Product C	300 x 1	=	300
Product D	200 x 2	=	<u>400</u>
			<u>1,600</u>

Only 1,200 direct labour hours available therefore a shortfall of 400 hours exists

Product	A	B	C	D
Variable costs (per unit)	£	£	£	£
Direct materials	2	4	3	4
Direct labour	10	15	10	20
Variable overheads	<u>2</u>	<u>3</u>	<u>2</u>	<u>4</u>
Variable cost of manufacture	14	22	15	28
Variable cost of buying	<u>19</u>	<u>28</u>	<u>21</u>	<u>37</u>
Extra variable cost of buying in	<u>5</u>	<u>6</u>	<u>6</u>	<u>9</u>
Labour hours per unit saved by buying in	1	1.5	1	2
Extra cost of buying in per labour hour saved	£5	£4	£6	£4.50
Buying in priority	3	1	4	2

The company should therefore buy in	Hours saved
200 units of product B	300
50 units of product D	<u>100</u>
	<u>400</u>

(b) **Manufacturing and Trading account for the period**

	£	£
Sales		
Product A (600 x £25)	15,000	
Product B (200 x £40)	8,000	
Product C (300 x £30)	9,000	
Product D (200 x £50)	<u>10,000</u>	42,000
Variable cost of manufacture		
Product A (600 x £14)	8,400	
Product C (300 x £15)	4,500	
Product D (150 x £28)	<u>4,200</u>	17,100
Variable cost of buying		
Product B (200 x £28)	5,600	
Product D (50 x £37)	<u>1,850</u>	<u>7,450</u>
Total variable cost		24,550
Fixed overheads		<u>10,400</u>
Cost of sales		<u>34,950</u>
Gross profit		<u>7,050</u>

QUESTION 6

Sole Products Ltd, which produces a single component for the motor industry, has just completed its first year of trading. The summary profit and loss account for the year is set out below:

	£000	£000
Sales (13,000 units)		936
Direct Costs		
Direct material	273	
Direct labour	247	
Direct expenses	78	
Overheads		
Production	171	
Administration	55	
Selling	<u>134</u>	<u>958</u>
Net Loss		<u>22</u>

The following information is available:

- (1) All of the direct costs are variable with production.
- (2) The production overhead figure includes £80,000 fixed costs. The remaining production overheads vary with production.
- (3) All of the administration overheads are fixed.
- (4) Variable selling overheads are incurred at the rate of £8 per unit. The remaining selling overheads are fixed.

REQUIRED

Calculate for Year 1:

- (a) The break-even point in units and sales value. (7 marks)
- (b) The profit that would have been earned from the sale of 16,000 units. (2 marks)
- (c) The number of units needed to be sold to achieve a profit of £22,000. (2 marks)

The company has set a profit objective of £25,000 for year 2. Two suggestions have been made as to how this profit could be achieved.

Suggestion 1

Reduce the selling price by £3 per unit and use a less expensive material that would reduce the direct material cost by £2 per unit.

Suggestion 2

Increase the selling price by £4 per unit and increase advertising expenditure by £48,000. In addition use a less expensive material that would reduce the direct material cost by £2 per unit.

All other fixed costs and unit variable costs will remain unchanged for Year 2.

- (d) Calculate for each suggestion how many units need to be sold to achieve the profit objective of £25,000. (9 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 6

(a) Break-even point

Fixed costs / unit contribution	$\text{£}165,000 / \text{£}11 = 15,000 \text{ units}$
Break-even point in value	$\text{£}15,000 \times \text{£}72 = \text{£}1,080,000$

Workings:

Direct Costs/Overheads	Variable £000	Fixed £000
Direct material	273	
Direct labour	247	
Direct expenses	78	
Production Overhead	91	80
Administration overhead		55
Selling overhead	<u>104</u>	<u>30</u>
Total costs	<u>793</u>	<u>165</u>

Selling price per unit	$(936,000 / 13,000)$	<u>£72</u>
Variable cost per unit	$(793,000 / 13,000)$	<u>£61</u>
Contribution per unit		<u>£11</u>

(b) Profit from sale of 16,000 units

Total contribution	16,000 units x £11 per unit	£176,000
Less fixed costs		<u>£165,000</u>
Profit		<u>£11,000</u>

(c) Number of unit sales for profit of £22,000

Total contribution required	= £22,000 + £165,000	= £187,000
Number of unit sales	= £187,000 / £11	= 17,000 units

(d)

Suggestion 1

	£ per unit	
Contribution	11	
less decrease in selling price	3	
plus reduction in material cost	<u>2</u>	
New contribution	<u>10</u>	
Total contribution required = £25,000 + £165,000		£190,000
Number of sales = £190,000 / £10		19,000 units

Suggestion 2

Contribution	11	
plus increase in selling price	4	
plus reduction in material cost	<u>2</u>	
New contribution	<u>17</u>	
Fixed costs increase by £48,000 (increase in advertising costs)		
New fixed cost = £165,000 + £48,000 = £213,000		
Total contribution required = £25,000 + £213,000		£238,000
Number of sales = £238,000 / £17		14,000 units

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