

Cost Accounting



Level 2

Series 4 2003

(Code 2016)

Model Answers

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How to use this booklet

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 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.

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.

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QUESTION 1

- (a) Using no more than three lines for each explain the following terms:
- (i) Cost unit
 - (ii) Functional cost
 - (iii) Fixed cost
 - (iv) Variable cost
 - (v) Direct cost
 - (vi) Indirect cost. (12 marks)
- (b) Give **2** examples of production overhead which can be identified with and allocated to specific cost centres. (4 marks)
- (c) State **2** commonly used bases of apportioning overhead costs to cost centres with an appropriate example of an overhead cost type for each. (4 marks)
- (Total 20 marks)**

Model Answer to Question 1

- (a) (i) A **cost unit** is a unit of product or service for which costs are ascertained.
- (ii) A **functional cost** is one that relates to a function or area of operations of a business, for example production, administration, selling and distribution.
- (iii) A **fixed cost** is one that does not increase or decrease with changes in the level of activity.
- (iv) A **variable cost** is one that varies in direct proportion to and in sympathy with changes in the level of activity.
- (v) A **direct cost** is expenditure which can be economically identified with and specifically measured in respect to a relevant cost object.
- (vi) An **indirect cost** is one that cannot be traced directly to a unit of product and is treated as an overhead expense item.
- (b) Indirect materials, indirect labour, depreciation, metered power or electricity.
- (c) Area (rent and rates)
Number of employees (canteen)
Book value of buildings (buildings insurance)
Volume space occupied (heating)

QUESTION 2

A company makes 2 products, X and Y. Present costs and selling prices per unit are as follows:

	X	Y
	£	£
Selling price	120	84
Direct material	6	21
Direct labour at £6 per hour	72	36
Variable production overhead	6	6
Monthly production (units)	2000	4000

Total fixed production overhead costs are £72,000 per month and these are absorbed on a direct labour hour basis calculated on a budgeted monthly activity of 48,000 hours.

Fixed administration, selling and distribution costs of £49,200 per month are recovered as a percentage of total production cost.

Production methods demand a highly skilled labour force and only 48,000 hours per month are currently available. Monthly sales demand has suddenly increased to 3,000 units of X and 5,000 units of Y and steps are being taken to increase the labour force to meet this demand. There are no other constraints and the level of fixed costs will remain unchanged.

REQUIRED

- (a) Calculate the total unit costs of **each** product and the net profit per unit. (7 marks)
- (b) On the basis of the direct labour hours currently available, decide on the product mix, which will maximise profit for next month and calculate the amount of this profit. (10 marks)
- (c) Calculate the amount of additional profit per month if the direct labour force is increased by 20%. (3 marks)

(Total 20 marks)

Model Answer to Question 2

(a) Total unit cost	X	Y
	£	£
Direct material	6.00	21.00
Direct labour at £6 per hour	72.00	36.00
Variable production overhead	6.00	6.00
Fixed production overhead*	<u>18.00</u>	<u>9.00</u>
Total production cost	102.00	72.00
Admin, selling and distribution overhead (10%)	<u>10.20*</u>	<u>7.20*</u>
	<u>112.20</u>	<u>79.20</u>
Selling price	<u>120.00</u>	<u>84.00</u>
Profit per unit	<u>7.80</u>	<u>4.80</u>

Fixed production overhead workings

$$\text{Absorption rate} = \frac{\pounds 72\,000}{48\,000} = \pounds 1.50 \text{ per direct labour hour}$$

$$\begin{array}{l} \text{X } 12 \text{ hours} \times \pounds 1.5 = \pounds 18 \\ \text{Y } 6 \text{ hours} \times \pounds 1.5 = \pounds 9 \end{array}$$

Fixed administration, selling and distribution overhead workings

$$\begin{array}{l} \text{Administration, selling and distribution overhead} = \pounds 49\,200 \\ \text{Total production cost} = \text{X } 2000 \times \pounds 102 = \pounds 204\,000 \\ \text{Y } 4000 \times \pounds 72 = \pounds 288\,000 \\ \hline \pounds 492\,000 \end{array}$$

$$\text{Absorption \%} = \pounds 49\,200 \div \pounds 492\,000 \times 100 = 10\%*$$

(b)	X	Y
Per unit	£	£
Selling price	120	84
Variable cost	<u>84</u>	<u>63</u>
Contribution	36	21
Direct labour hours	$\div \frac{12}{3}$	$\div \frac{6}{3.5}$
Contribution per d/l hour	<u>3</u>	<u>3.5</u>

∴ make Y first priority

Units	Hours used	Cont'n per hour £	Total Contribution £
Y 5,000 (x 6 hrs)	30,000	3.5	105,000
X 1,500 x 12 hrs	18,000	3.0	<u>54,000</u>
			159,000
/less fixed costs			<u>121,200</u>
Profit			<u>37,800</u>

(c) Direct labour force increase by 20%

$$\text{Hours } 20\% \times 48,000 = 9,600 \text{ hours}$$

Available for X at 12 hours per unit

$$= \frac{9,600}{12} = 800 \text{ units X}$$

800 units at £36 per unit
or 9,600 hours at £3 per hour

$$= \text{Additional profit } \pounds 28,800$$

QUESTION 3

REQUIRED

(a) Explain briefly the difference between budgeting and budgetary control.

(6 marks)

A company makes four products, A, B, C and D, which require operations in machine shops M1, M2, M3 and M4. Next year's production budget and the standard times set in the four machine shops are as follows:

Product	A	B	C	D
Production Budget (units)	6,000	5,250	4,000	3,750

Standard minutes per unit of product

Product	A	B	C	D
Machine shop M1	75	40	60	48
Machine shop M2	63	80	30	72
Machine shop M3	52	40	90	24
Machine shop M4	21	40	15	96

All direct machine operators work a 40-hour week, are allowed 5 weeks holiday a year and each operative is budgeted for absences of 2 weeks.

Budgeted hourly rates of pay in each machine shop are:

	M1	M2	M3	M4
£ per hour	8.40	7.80	6.00	4.80

REQUIRED

(b) Prepare the direct labour budget for next year showing:

- (i) both the direct labour hours and the number of machine operators for **each** machine shop (10 marks)
- (ii) the direct labour cost for **each** machine shop. (4 marks)

(Total 20 marks)

Model Answer to Question 3

- (a) Budgeting is the **preparation of budgets** for a **defined budget period**, usually one year, and the division of the budget into **shorter term budgets** usually for a month.

Budgetary control is the **comparison of actual figures** for a month **with those budgeted** so that **corrective action** can be taken where **unacceptable variances** occur.

- (b) **Direct labour budget**

- (i) **Labour hours and machine operators :**

Machine shop	Product								Grand total hours*	No of Ops**
	Product A 6,000 units		Product B 5,250 units		Product C 4,000 units		Product D 3,750 units			
	Minutes per unit	Total hrs	Minutes per unit	Total hrs	Minutes per unit	Total hrs	Minutes per unit	Total hrs		
M1	75	7,500	40	3,500	60	4,000	48	3,000	18,000	10
M2	63	6,300	80	7,000	30	2,000	72	4,500	19,800	11
M3	52	5,200	40	3,500	90	6,000	24	1,500	16,200	9
M4	21	2,100	40	3,500	15	1,000	96	6,000	12,600	7

Note: To calculate number of operators divide total hours by 1800 (45 weeks x 40 hours)

*Grand total **Operators

- (ii) **Direct labour cost**

	M1	M2	M3	M4
Hours	18,000	19,800	16,200	12,600
Rate per hour	£8.40	£7.80	£6.00	£4.80
Direct labour cost	£151,200	£154,440	£97,200	£60,480

QUESTION 4

Products A, B, C and D are produced in a joint process. All products emerge in a saleable condition and no further processing is necessary. Work-in-progress does not occur.

During Month 3, joint costs amounted to £800,000 and details of production and sales were as follows:

Product	Production Kg	Sales Kg	Selling Price per kg £
A	40,000	36,000	15
B	50,000	40,000	14
C	50,000	42,000	16
D	20,000	18,000	20

All stocks of unsold products at the end of the month were valued at £5 per kg. There were no stocks of finished products at the beginning of the month.

REQUIRED

(a) Define the following:

- (i) joint product
- (ii) by-product.

(6 marks)

(b) State what basis of joint cost apportionment has been used to arrive at the stock valuation of £5 per kg.

(2 marks)

(c) Using an alternative basis of apportionment, produce calculations to show the closing stock valuation for each product and in total.

(8 marks)

(d) State by how much the reported profit for Month 3 would have increased or decreased if your alternative basis of apportionment had been used.

(4 marks)

(Total 20 marks)

Model Answer to Question 4

(a) **Joint product**

Two or more products separated in processing, each having a **sufficiently high saleable value** to merit recognition as a **main product**.

By-product

Output of some value produced **incidentally** in manufacturing something else (main product).

(b) Physical units basis is used

$$\frac{£800,000}{160,000 \text{ kg}} = £5 \text{ per kg}$$

(c) Using sales value of production as basis.

	kg	x	SP £	Sales Value £000	Joint Cost £000	Cost per kg £
A	40,000	x	15	600	192	4.80
B	50,000	x	14	700	224	4.48
C	50,000	x	16	800	256	5.12
D	20,000	x	20	<u>400</u>	<u>128</u>	6.40
				<u>2,500</u>	<u>800</u>	
Closing stock valuation				£	£	
A	4,000 kg	at	4.80	=	19,200	
B	10,000 kg	at	4.48	=	44,800	
C	8,000 kg	at	5.12	=	40,960	
D	2,000 kg	at	6.40	=	<u>12,800</u>	
					<u>117,760</u>	

(d) Present stock valuation

24,000 kg at £5 = £120,000

Alternative $\frac{£117,760}{£ \underline{2,240}}$ **Reduced profit**

QUESTION 5

A wholesaler trades in a product, which it sells to retailers at a fixed price of £85 per unit. The opening stock at the beginning of Year 3 was 200 units, which cost £40 each.

The following extract from the stock record for Month 1 Year 3 showed the following:

Day	Purchases				
	Quantity Units	Unit Price £	Total £	Sales Units	Cost of Sales £
4	400	45	18,000	–	–
9	200	46	9,200	–	–
10	–	–	–	500	21,500
18	500	45	22,500	–	–
19	–	–	–	100	4,500
24	200	47.50	9,500	–	–
30	100	48	4,800	–	–
31	–	–	–	200	9,200

REQUIRED

- (a) Calculate the total gross profit on sales for Month 1 Year 3. (4 marks)
- (b) State which method of pricing issues is currently being used. Support your answer with relevant calculations. (6 marks)
- (c) Choose an alternative method of pricing issues from stock on an **actual cost** basis and calculate the gross profit if this pricing method had been used. (10 marks)

(Total 20 marks)

Model Answer to Question 5

(a) Gross profit	£
Sales 800 x £85 =	68,000
less cost of sales	
21,500 + 4,500 + 9,200 =	<u>35,200</u>
Gross profit	<u>32,800</u>

(b) **Method used is FIFO**

Calculations to prove		£
opening stock	200 x £40 =	8,000
add purchases	<u>1,400</u>	<u>64,000</u>
	1,600	72,000
less cost of sales	<u>800</u>	<u>35,200</u> *
C/stock	<u>800</u> units	<u>36,800</u>

C/stock value

Last three receipts 500 + 200 + 100 = 800
 £22,500 + £9,500 + 4,800 = 36,800
 Method must be FIFO

*** OR alternative**

		£
on day 10 issue 500	200 x £40 =	8,000
	300 x £45 =	<u>13,500</u>
		<u>21,500</u>

∴ method must be FIFO

(c) **EITHER**

Issues LIFO		£
Day 10	200 at £46 =	9,200
	300 at £45 =	13,500
Day 19	100 at £45 =	4,500
Day 31	100 at £48 =	4,800
	100 at £47.5 =	<u>4,750</u>
		<u>36,750</u>

Or closing stock

100 at £47.5 =	£4,750
400 at £45.0 =	£18,000
100 at £45.0 =	£4,500
200 at £40.0 =	<u>£8,000</u>
	<u>£35,250</u>

Gross profit	£
Sales	68,000
Cost of sales	<u>36,750*</u>
Gross profit	<u>31,250</u>
For naming LIFO	

Opening stock £8,000 + Purchases £64,000 – closing stock £35,250 = £36,750*

Model Answer to Question 5 continued

OR alternative

Issues weighted average			£	
Opening stock	200		=	8,000
Receipts	600		=	<u>27,200</u>
Balance	800	at £44	=	<u>35,200</u> (WA $\frac{35,200}{800}$)
Issues	500	at £44	=	<u>22,000</u>
Balance	300		=	13,200
Receipts	500		=	<u>22,500</u>
Balance	800	£44.625		35,700 (WA $\frac{35,700}{800}$)
Issues	100	£44.63		<u>4,463</u>
Balance	700			31,237
Receipt	300			<u>14,300</u> (WA $\frac{45,537}{1,000}$)
Balance	1,000	£45.537		45,537
Issues	200	£45.537		<u>9,107</u>
C/stock	800			<u>36,430</u>
Gross profit			£	
Sales				68,000
Cost of sales				<u>35,570*</u>
Gross profit				<u>32,430</u>

Opening stock £8000 + Purchases £64 000-closing stock £36 430 = £35 570*

QUESTION 6

A company makes and sells three products, A, B and C. Unit costs and selling prices are as follows:

	A	B	C
Per unit	£	£	£
Selling price	70	50	80
Variable costs	20	10	50

Fixed costs are £175,000 per month.

Sales vary between a maximum of 2,000 units and a minimum of 1,500 units per month of each product.

REQUIRED

- (a) Calculate the contribution to sales (CS) ratio for **each** product. (4 marks)
- (b) Calculate the company's monthly profit or loss on sales of
- (i) 2,000 units per month of **each** product
 - (ii) 1,500 units per month of **each** product. (7 marks)
- (c) Assuming that monthly sales will be 1,660 units of A and 1,700 units of B, calculate the number of units of C, which would need to be sold
- (i) to achieve break even (5 marks)
 - (ii) to achieve a target profit of £30,000. (4 marks)

(Total 20 marks)

Model Answer to Question 6

(a) Contribution to sales (CS) ratio

Unit	A	B	C
Selling price	£70	50	80
Variable cost	<u>£20</u>	<u>10</u>	<u>50</u>
Contribution	£50	40	30
CS ratio	<u>50</u> 70	<u>40</u> 50	<u>30</u> 80
	71.43%	80%	37.5%

(b) (i) Maximum demand

	Units	Unit Contribution £	Total Contribution £
A	2,000	50	100,000
B	2,000	40	80,000
C	2,000	30	<u>60,000</u>
			240,000
Less fixed costs			<u>175,000</u>
Profit			<u>65,000</u>

(ii) Minimum demand

A	1,500	50	75,000
B	1,500	40	60,000
C	1,500	30	<u>45,000</u>
			180,000
Less fixed costs			<u>175,000</u>
Profit			<u>5,000</u>

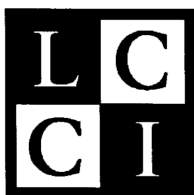
(c) (i)

	£	
Contribution to cover fixed costs	<u>175,000</u>	(break even)
from A 1,660 units x 50 =	83,000	
B 1,700 units x 40 =	68,000	
* C 800 units x 30	<u>24,000</u>	Balance
* Fixed costs	<u>175,000</u>	
= 800 units of C		

(ii) Contribution to achieve target profits:

	£	
Target profit	30,000	
Fixed costs	<u>175,000</u>	
	<u>205,000</u>	
From A as above	83,000	
From B as above	68,000	
Balance from C	<u>54,000</u>	(or £24,000 from (ci)
	<u>205,000</u>	+ target profit £30,000

Contribution £54,000 = 1,800 units of C at £30 per unit



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