LCCI EXAMINATIONS BOARD

Cost Accounting

3

Level 3

Series 2 2003

(Code 3016)

Model Answers

ASP M 1442

Cost Accounting Level 3
Series 2 2003

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.

Cost Accounting Level 3
Series 2 2003

QUESTION 1

A company manufactures and sells a single product. Standards set for the period ahead are:

(i) Resource requirements (per unit of product):

Material M	0.6 kg
Material N	1.75 litres
Direct labour	0.35 hours

(ii) Resource costs (per unit of resource):

Material M	£9.90 per kg
Material N	£4.20 per litre
Direct labour	£7.80 per hour

(iii) Selling price: £30.00 per unit

Budgets for the period ahead include:

Sales	21,000	units
Production	21,000	units
Variable production overheads	£13,650	
Fixed production overheads	£109,000	
Variable non-production overheads	£26,600	
Fixed non-production overheads	£91,000	

REQUIRED

(a) Prepare a budgeted profit statement for the period ahead in marginal costing format (both £ per unit and total £).

(9 marks)

(b) Prepare a profit-volume chart (up to a period volume of 25,000 units). Indicate the break-even point, margin of safety and areas of profit/loss clearly on the chart.

(7 marks)

(c) Calculate the break-even sales (both in value and units) without reference to the profit-volume chart. Show workings clearly.

(4 marks)

(Total 20 marks)

Model Answer to Question 1

(a) Budgeted profit statement for the period:

	£ per unit		£000
Sales	30.00	x 21,000	630.0
Variable cost of sales:			
Material M (0.6 x 9.90)	5.94	x 21,000	124.74
Material N (1.75 x 4.20)	7.35	x 21,000	154.35
Direct labour (0.35 x 7.80)	2.73	x 21,000	57.33
Variable production overheads (13,650 ÷ 21,000)	0.65	x 21,000	13.65
Variable non-prod overheads (26,600 ÷ 20,000)	1.26	x 21,000	26.60
	17.936		376.67
Contribution	12.063		253.33
Fixed overheads:			
Production			109.0
Non-production			91.0
			200.0
Net profit			53.33

(b) See graph

(c) Break-even:

200,000 ÷ 12.063 = 16,579 units x 30 = £497,370

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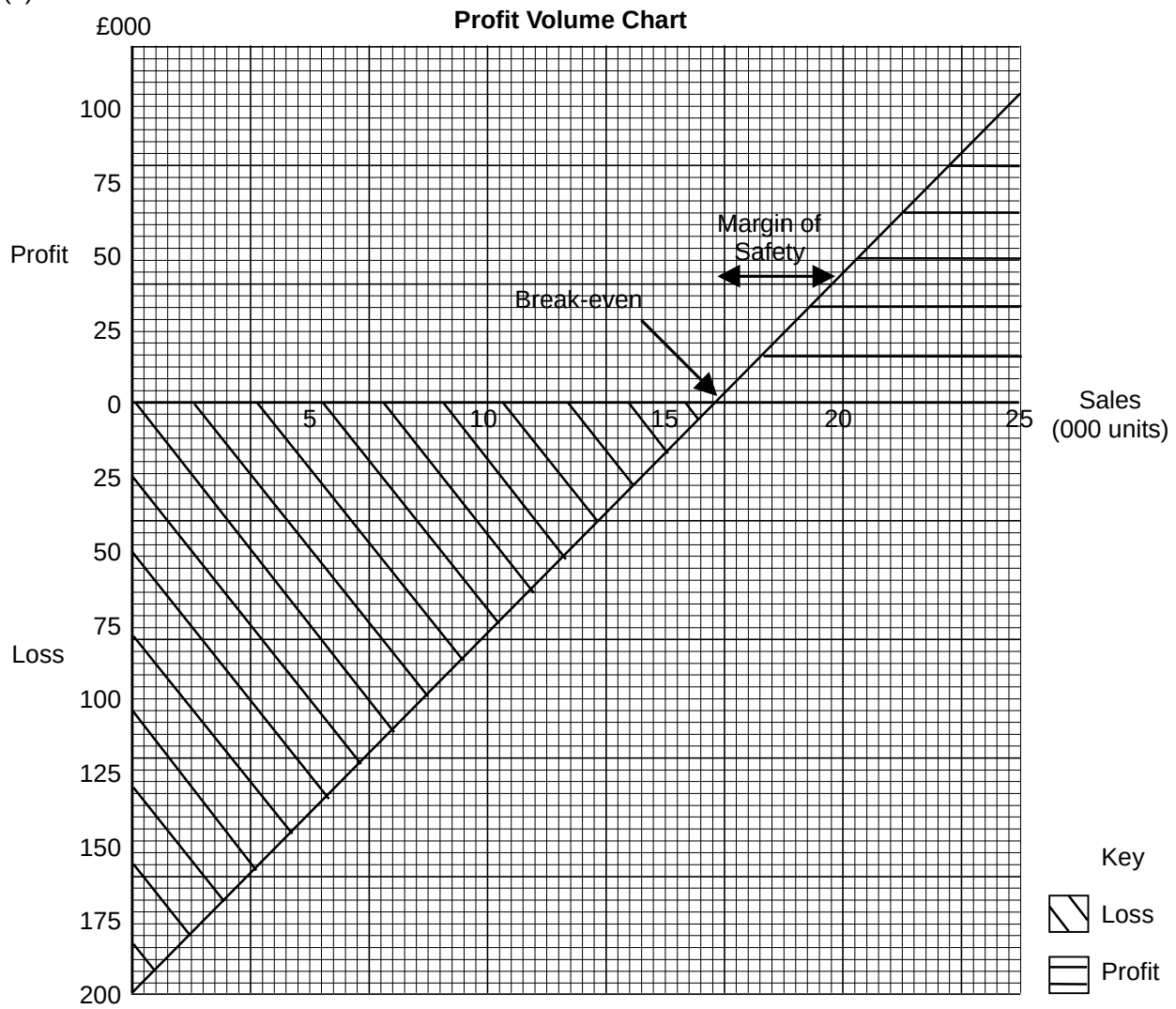
Model Answer to Question 1 continued

(b)



QUESTION 2

A company manufactures main products X and Y and by-product BP. The first stage of manufacture is a joint process operation. All products then require further processing prior to sale. The following information relates to the joint process in the period just ended:

Input:

Raw material:	6,500 kg at £8.70 per kg
Conversion costs:	£48,130

Output:

Product X:	4,060 kg
Product Y:	1,940 kg
By-product BP:	220 kg

Losses are treated as being normal. There is no work-in-progress at the end of each period and no finished goods stocks are held.

Additional information:

	Further processing costs (£ per kg)	**Selling price (£ per kg)**
Product X	5.00	30.00
Product Y	10.00	50.00
By-product BP	0.60	4.60

REQUIRED

(a) Prepare a statement showing the gross profit of each main product, and in total, for the month just ended using each of the following methods of joint cost apportionment:

(i) weight of output (11 marks)

(ii) net sales value of output. (6 marks)

A potential new customer has offered to purchase 600 kg of Product X, before further processing, for £15,600.

REQUIRED

(b) Explain, with supporting calculations, whether you would accept the customer's offer. (3 marks)

(Total 20 marks)

Model Answer to Question 2

(a) Joint cost apportionment:

(i) Weight of output:

Costs:	**£**	
Materials	56,550	(6,500 kg @ £8.70 per kg)
Conversion costs	48,130	
	104,680	
By-product sale	(880)	[220 kg @ (4.60 – 0.60 per kg)]
	103,800	

Output:	**Kg**
Product X	4,060
Product Y	1,940
	6,000

Cost per kg = £103,800 ÷ 6,000 kg = £17.30 per kg

Joint cost apportionment:

Product X	4,060 x 17.30 =	£70,238
Product Y	1,940 x 17.30 =	£33,562
		£103,800

Gross profit statement (£):

	Product X	**Product Y**	**Total**
Sales[1]	121,800	97,000	218,800
Production cost of sales:			
Joint process	70,238	33,562	103,800
Further process[2]	20,300	19,400	39,700
	90,538	52,962	143,500
Gross profit	31,262	44,038	75,300

Workings:

[1] Sales:

Product X: 4,060 kg @ £30.00 per kg =	£121,800
Product Y: 1,940 kg @ £50.00 per kg =	£97,000

[2] Further processing costs:

Product X: 4,060 kg @ £5.00 per kg =	£20,300
Product Y: 1,940 kg @ £10.00 per kg =	£19,400

(ii) Net sales value of output:

Net sales value:	**£**	
Product X	101,500	[4,060 kg @ (£30 – 5 per kg)]
Product Y	77,600	[1,940 kg @ (£50 – 10 per kg)]
	179,100	

Joint cost apportionment		
Product X	58,826	[103,800 x (101,500 ÷ 179,100)]
Product Y	44,974	[103,800 x (77,600 ÷ 179,100)]
	103,800	

Model Answer to Question 2 continued

Gross profit statement (£):

	Product X	Product Y	Total
Sales	121,800	97,000	218,800
Production cost of sales:			
Joint process	58,826	44,974	103,800
Further process	20,300	19,400	39,700
	79,126	64,374	143,500
Gross profit	42,674	32,626	75,300

(b) It is worthwhile to accept the offer as £26 per kg (£15,600 ÷ 600 kg) > £25 per kg (final sales value - further processing cost).

However, the impact on existing customers would have to be considered along with the potential of the new customer.

QUESTION 3

A company that manufactures two products (Products A and B), and uses two raw materials (Materials X and Y) in their manufacture, is preparing budgets for the next year.

The standard raw material requirements, per unit of product manufactured, are:

	Material X	**Material Y**
Product A	2 kg	1 kg
Product B	1 kg	2 kg

Raw material purchases are budgeted such that there is sufficient stock at the beginning of a month to satisfy that month's production requirements.

The following budgeted information is also available:

	Product A	**Product B**
Sales units for the year	34,500	52,000
Production reject rate	5%	2%
Finished goods stock at start of budget year	3,200 units	4,192 units

Production rejects occur after inspection at the end of the manufacturing process. Finished goods stock of each product at the end of the budget period is to be budgeted at a level 50% above that at the start of the period. Production is budgeted to be spread evenly over the year.

REQUIRED

(a) Prepare the following budgets for the next year:

(i) production (units of each product after inspection) (3 marks)

(ii) material usage (kg of each raw material). (8 marks)

(b) Calculate the stock of each raw material (to the nearest kg) required at the beginning of the budget year.

(3 marks)

(c) Explain fully each of the following terms:

(i) budget officer

(ii) budget manual.

(6 marks)

(Total 20 marks)

Model Answer to Question 3

(a) (i) Production budget (units after inspection):

	Product A	**Product B**
Sales	34,500	52,000
Increase in finished goods stock	1,600	2,096
Production (after inspection)	36,100 units	54,096 units

(ii) Material usage budget:

Production before inspection:

	Product A	**Product B**
Production (after inspection)	36,100	54,096
x 1 / (1 - reject rate (decimal))	1 / 0.95	1 / 0.98
Production (before inspection)	38,000 units	55,200 units

Usage:				Total
Material X	(x 2) 76,000	(x 1) 55,200	=	131,200 kg
Material Y	(x 1) 38,000	(x 2)110,400	=	148,400 kg

(b) Material X = 131,200 ÷ 12 = 10,933 kg
Material Y = 148,400 ÷ 12 = 12,367 kg

(c) Budget officer:
A budget officer may be appointed in a business with responsibility for:

- Reviewing budgeting practices and procedures on an ongoing basis with a view to their improvement
- Agreeing a timetable for budget preparation
- Progressing budget preparation with all participants
- Supervising the co-ordination and approval of budgets and their consolidation into the master budget

Budget manual:
A budget manual is a document that:

- Describes budget practices and procedures
- Sets down key dates and deadlines in the budgeting process
- Includes the pro-forma documents used in the budgeting process

QUESTION 4

A company manufactures and sells a single product. The standard direct costs are as follows:

Direct materials:	1.6 kg @ £6.50 per kg
Direct labour:	0.75 hours @ £9.00 per hour

Production overheads (all fixed) are absorbed on the basis of standard direct labour hours. The budgeted fixed production overhead costs per unit of product for a period were £9.75.

The budgeted output in the period was 12,000 units of product.

Raw material stocks are valued at standard cost.

Actual results for the period were:

Direct materials:	19,000 kg purchased at a cost of £123,960, 18,220 kg used in the production of 11,600 units of product.
Direct labour:	8,810 hours worked at a cost of £78,840.
Fixed production overheads:	£116,130 expenditure incurred.

REQUIRED

For the period:

(a) calculate the cost variances in as much detail as possible from the information provided

(15 marks)

(b) prepare the raw material stock account (NB 1,600 kg were in stock at the beginning of the period).

(5 marks)

(Total 20 marks)

Model Answer to Question 4

(a) Cost variances:

Direct material price variance:	£460	Adv	[123,960 – (19,000 x 6.50)]
Direct material usage variance:	£2,210	Fav	[18,220 – (11,600 x 1.6)] x 6.50
Direct labour rate variance:	£450	Fav	[78,840 – (8,810 x 9.00)]
Direct labour efficiency variance:	£990	Adv	[8,810 – (11,600 x 0.75)] x 9.00
Fixed overhead expenditure variance:	£870	Fav	[(12,000 x 9.75) – 116,130]
Fixed overhead capacity variance:	£2,470	Adv	[(12,000 x 0.75) – 8,810] x 9.75/0.75
Fixed overhead efficiency variance:	£1,430	Adv	[8,810 – (11,600 x 0.75)] x 9.75/0.75
or Fixed overhead volume variance:	£3,900	Adv	[(12,000 – 11,600) x 9.75] ie £2,470 + £1,430

(b)

Raw Material Stock Account

	£		£
Opening balance (1,600 x 6.50)	10,400	Price variance	460
Purchases (actual cost)	123,960	Work-in-progress (18,220 x 6.50)	118,430
		Closing balance (2,380 x 6.50)	15,470
	134,360		134,360

or if purchases are entered in the stock account at standard cost (ie price variance already taken out):

Raw Material Stock Account

	£		£
Opening balance	10,400	Work-in-progress	118,430
Purchases (std cost) (19,000 × 6.50)	123,500	Closing balance	15,470
	133,900		133,900

QUESTION 5

A company has three production cost centres and two service cost centres in its factory. Overhead costs (£) for a period have been budgeted as follows:

	General Factory	Cost Centre				
		Machining	**Assembly**	**Finishing**	**Service A**	**Service B**
Indirect materials		19,390	11,360	3,220	8,160	5,350
Indirect labour		16,660	25,940	18,720	13,370	14,190
Machine depreciation		40,340	5,240	13,750	1,260	1,470
Building related costs	67,200					
Machine maintenance and insurance	26,500					
Management	16,640					

Other budgeted information for the period relating to the factory:

	Cost Centre				
	Machining	**Assembly**	**Finishing**	**Service A**	**Service B**
Floor area (m^2)	600	750	300	200	250
Cost of machinery (£000)	326	43	135	12	14
Machine hours	4,270				
Number of employees	10	30	12	8	5
Direct labour hours	2,610	7,900	4,130		

Service cost centres are budgeted to provide services to other cost centres as follows:

	Cost Centre				
	Machining	**Assembly**	**Finishing**	**Service A**	**Service B**
Service cost centre A	20%	50%	20%	---	10%
Service cost centre B	30%	30%	30%	10%	---

The company uses the information set out above to calculate a predetermined production overhead absorption rate for each production cost centre.

REQUIRED

(a) Apportion overheads, as necessary, to enable predetermined absorption rates to be established.
(12 marks)

(b) Establish appropriate production overhead absorption rates for the period (to two decimal places of £).
(4 marks)

(c) Explain what could cause an over-absorption of overhead in the period.
(4 marks)

(Total 20 marks)

Model Answer to Question 5

(a) Overhead apportionment (£):

	Machining	Assembly	Finishing	Service A	Service B
Allocated	76,390	42,540	35,690	22,790	21,010
Apportioned:					
Building related[1]	19,200	24,000	9,600	6,400	8,000
M/c maintenance & ins[2]	16,300	2,150	6,750	600	700
Management[3]	2,560	7,680	3,072	2,048	1,280
	114,450	76,370	55,112	31,838	30,990
Re-apportionment:					
Service A (1)	6,368	15,919	6,368	(31,838)	3,183
Service B (1)	10,252	10,252	10,252	3,417	(34,173)
Service A (2)	683	1,709	683	(3,417)	342
Service B (2)	103	103	103	33	(342)
Service A (3)	7	19	7	(33)	--
	17,413	28,002	17,413	--	--
	131,863	104,372	72,525		

Workings:

[1] based on floor area eg Machining 67,200 x (600 ÷ 2,100)
[2] based on cost of machinery eg Machining 26,500 x (326 ÷ 530)
[3] based on number of employees eg Machining 16,640 x (10 ÷ 65)

or by simultaneous equations:

Let *a* be total costs of Service A (including share of Service B)
Let *b* be total costs of Service B (including share of Service A)
Then:
$a = 31,838 + 0.1b$
$b = 30,990 + 0.1a$

$a - 0.1b = 31,838$
$b - 0.1a = 30,990$

$10a - b = 318,380$
$0.1a - b = -30,990$
$9.9a = 349,370$
$a = 35,290$

$b = 30,990 + (0.1 \times 35,290)$
$= 34,519$

Thus:	Machining	Assembly	Finishing
Service A	7,058	17,645	7,058
Service B	10,356	10,355	10,356
	17,414	28,000	17,414

(b) Overhead absorption rates:

Machining: £131,863 ÷ 4,270 machine hours = £30.88 per machine hour

Assembly: £104,372 ÷ 7,900 direct labour hours = £13.21 per direct labour hour

Finishing: £72,525 ÷ 4,130 direct labour hours = £17.56 per direct labour hour

(c) Over-absorption of overhead could be caused by:

- production hours in excess of budget
- expenditure below budget.

QUESTION 6

A company has prepared the following summarised budgeted profit statement (by month) for a four month period:

(£000)	**Month 1**	**Month 2**	**Month 3**	**Month 4**
Sales	164	188	140	192
Production cost of sales:				
Direct materials	41	47	35	48
Direct labour	33	38	28	39
Overhead	49	52	46	53
	123	137	109	140
Gross profit	41	51	31	52
Non-production overhead	37	38	36	38
Net profit/(loss)	4	13	(5)	14

No stock of finished goods is held. Budgeted beginning of month balances for current assets/liabilities (excluding bank/cash) are:

(£000)	**Beginning Month 1**	**Beginning Month 2**	**Beginning Month 3**	**Beginning Month 4**	**Beginning Month 5**
Stock of raw materials	29	32	25	33	31
Debtors	140	128	146	120	155
Creditors for raw materials	53	54	50	54	54
Accrued wages/overhead	16	18	14	18	17

The bank balance at the beginning of Month 1 is expected to be £16,000.

Overheads include depreciation of £22,000 per month. Capital expenditure of £105,000 is budgeted in Month 2.

REQUIRED

(a) Prepare a cash budget for each of the four months (1, 2, 3 and 4).

(17 marks)

(b) Describe any actions that you would recommend in response to the cash budget.

(3 marks)

(Total 20 marks)

Model Answer to Question 6

(a) Cash budget (£000):

	Month 1	Month 2	Month 3	Month 4
Receipts:				
Sales	164	188	140	192
+ opening debtors	140	128	146	120
- closing debtors	(128)	(146)	(120)	(155)
Receipts from sales	176	170	166	157
Payments:				
Raw material usage	41	47	35	48
+ closing stock	32	25	33	31
- opening stock	(29)	(32)	(25)	(33)
Raw material purchases	44	40	43	46
+ opening creditors	53	54	50	54
- closing creditors	(54)	(50)	(54)	(54)
Payments for raw materials	43	44	39	46
Direct labour & overhead	119	128	110	130
+ opening accrual	16	18	14	18
- closing accrual	(18)	(14)	(18)	(17)
- depreciation	(22)	(22)	(22)	(22)
Payments for labour & o'hd	95	110	84	109
Capital expenditure	----	105	----	----
Total payments	138	259	123	155
Net cash inflow/(outflow)	38	(89)	43	2
Opening cash balance	16	54	(35)	8
Closing cash balance	54	(35)	8	10

(b) Actions:

- Negotiate short-term loan/overdraft with bank
- Try to delay capital expenditure by one month

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