

# Cost Accounting Level 3



## Model Answers

Series 2 2008 (Code 3016)

## **Vision Statement**

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# **Cost Accounting Level 3**

## **Series 2 2008**

### **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.

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## Cost Accounting Level 3

### Series 2 2008

#### QUESTION 1

A company uses a batch production method to manufacture its three products Hay, Bee and Cee. At present the company uses a traditional absorption costing system to establish the costs of production. Budgeted production data for the next period is as follows:

	Hay	Bee	Cee
Production output (units)	4,000	3,000	2,000
Production batch size (units)	20	30	10
Machine time per batch	6hrs	8hrs	5hrs
Material per batch at £15 per kg	20kg	30kg	40kg
Labour per batch at £12 per hour	6hrs	4hrs	8hrs

Variable production overheads are budgeted to be absorbed at £3.50 per labour hour.

Fixed production overheads for the period are budgeted to be £88,500, absorbed on a machine hour basis.

The company is considering the introduction of an activity based costing system.

Further investigation has revealed the following activities and related overhead costs:

Activities	Costs (£)
Product inspection	45,000
Machine set-up	25,000
Machine maintenance	12,000
Product despatch	10,200
Material handling	<u>7,500</u>
	<u>99,700</u>

Other information:

- (i) Orders budgeted: Hay 50 orders; Bee 30 orders and Cee 20 orders. Each order is expected to require one machine set up.
- (ii) One product in every ten is inspected.
- (iii) Machine maintenance is carried out regularly based on a predetermined number of machine running hours.
- (iv) Each product is packed and despatched in crates containing the following number of products per crate: Hay 20 units, Bee 50 units and Cee 25 units. The number of crates used influences product despatch costs.
- (v) Material handling costs are influenced by the quantity of material used.

#### REQUIRED

Calculate the cost of one production **batch** for each product using:

- (a) Traditional absorption costing (6 marks)
- (b) Activity based costing (14 marks)

**(Total 20 marks)**

## MODEL ANSWER TO QUESTION 1

Product	Hay	Bee	Cee
Output	4,000	3,000	2,000
Batch size	20	30	10
No of batches required	200	100	200
Machine hours per batch	6	8	5
Machine hours required	1,200	800	1,000
Total machine hours (H + B + C)	3,000hrs		
Fixed overheads for period	£88,500		
Overhead absorption rate	£29.50 per machine hour		

### (a) Batch cost (Traditional absorption costing)

	Hay £	Bee £	Cee £
Product			
Material	300.00	450.00	600.00
Labour	72.00	48.00	96.00
Variable overheads	21.00	14.00	28.00
Fixed overheads	<u>177.00</u>	<u>236.00</u>	<u>147.50</u>
Total batch cost	<b><u>570.00</u></b>	<b><u>748.00</u></b>	<b><u>871.50</u></b>

### (b) Batch cost (Activity based costing)

#### Overhead

##### Product inspection

Total overhead	£45,000		
No of inspections	900	(400 + 300 + 200)	
Overhead rate per inspection	£50 per inspection	(45,000 / 900)	

	Hay	Bee	Cee
Overhead per batch	(2 x 50)	(3 x 50)	(1 x 50)
Overhead per batch	<b>£100</b>	<b>£150</b>	<b>£50</b>

##### Machine set-up

Total overhead	£25,000		
No of set-ups	100	(50 + 30 + 20)	
Overhead rate per set-up	£250 per set-up	(£25,000 / 100)	
Overhead per batch	(0.25 x 250)	(0.3 x 250)	(0.1 x 250)
Overhead per batch	<b>£62.50</b>	<b>£75</b>	<b>£25</b>

##### Machine maintenance

Total overhead	£12,000		
No of machine hours	3,000	(1,200 + 800 + 1,000)	
Overhead rate	£4 per machine hour	(£12,000 / 3,000)	

	Hay	Bee	Cee
Overhead per batch	(6 x 4)	(8 x 4)	(5 x 4)
Overhead per batch	<b>£24</b>	<b>£32</b>	<b>£20</b>

**MODEL ANSWER TO QUESTION 1 CONTINUED**

**Product despatch**

Total overhead	£10,200		
No of crates	340	(200 + 60 + 80)	
Overhead rate	£30 per crate	(£10,200 / 340)	

	<b>Hay</b>	<b>Bee</b>	<b>Cee</b>
Overhead per batch	(1 x 30)	(0.6 x 30)	(0.4 x 30)
Overhead per batch	<b>£30</b>	<b>£18</b>	<b>£12</b>

**Material handling**

Total overhead	£7,500		
Total quantity of material	15,000 kg	(4,000 + 3,000 + 8,000)	
Overhead rate	£0.50 per kg	(£7,500 / 15,000)	

	<b>Hay</b>	<b>Bee</b>	<b>Cee</b>
Overhead per batch	(20 x 0.5)	(30 x 0.5)	(40 x 0.5)
Overhead per batch	<b>£10</b>	<b>£15</b>	<b>£20</b>

**Batch costs(£)**

	<b>Hay</b>	<b>Bee</b>	<b>Cee</b>
Material	300.00	450.00	600.00
Labour	72.00	48.00	96.00
Overheads			
Inspection	100.00	150.00	50.00
Machine set-up	62.50	75.00	25.00
Machine maintenance	24.00	32.00	20.00
Product despatch	30.00	18.00	12.00
Material handling	<u>10.00</u>	<u>15.00</u>	<u>20.00</u>
	<b><u>598.50</u></b>	<b><u>788.00</u></b>	<b><u>823.00</u></b>

## QUESTION 2

A company has budgeted to use 2,400 units of component C10 in its production department during the forthcoming year. Production will be distributed uniformly throughout the year.

The following information is available regarding component C10:

Cost of component	£25 each (before discount)
Ordering costs	£100 per order
Stock holding costs	12% of the component cost per annum

The component can be purchased in order sizes of 200, 400, 800, 1,200 or 2,400 and it can be assumed that the company carries no buffer (safety) stock.

### REQUIRED

- (a) Produce a table showing the total annual ordering costs and the total annual stock holding costs of the component for each order size assuming no discount is received from the basic price. Identify the optimum order size.

(7 marks)

- (b) Use the EOQ formula to verify your answer.

(5 marks)

Assume that the supplier has offered the following quantity discounts:

Order size	Discount from the basic £25 unit price
0 – 799	No discount
800 - 2,399	5% discount
2,400 and over	7% discount

### REQUIRED

- (c) Advise the company on the order size that minimises the total annual cost if the quantity discounts are available. Support your advice with calculations.

(8 marks)

**(Total 20 marks)**



**MODEL ANSWER TO QUESTION 2**

(a)

Order size (units)	No of orders	Ordering costs £	Average stock (units)	Stock holding costs £	Total costs £
200	12	1,200	100	300	1,500
400	6	600	200	600	1,200
800	3	300	400	1,200	1,500
1,200	2	200	600	1,800	2,000
2,400	1	100	1,200	3,600	3,700

Optimum order size = 400 units

(b)

$$EOQ = \sqrt{\frac{2 \times Co \times D}{Ch}}$$

$$EOQ = \sqrt{\frac{2 \times 100 \times 2,400}{25 \times 0.12}}$$

$$EOQ = 400 \text{ units}$$

(c)

Options available	400	800	2,400
Order size	400	800	2,400
Component price (£)	<u>25.00</u>	<u>23.75</u>	<u>23.25</u>
Ordering costs	600	300	100
Stock holding costs (£)	600	1,140	3,348
Component costs (£)	<u>60,000</u>	<u>57,000</u>	<u>55,800</u>
Total annual costs (£)	<u>61,200</u>	<u>58,440</u>	<u>59,248</u>

**Advice**

Optimum order size = 800 components

### QUESTION 3

Jonathon is planning to start a new business on 1 January Year 9 by producing and selling a single product. Jonathon will invest £25,000 of his own capital of which £10,000 is available at the outset with the balance in July Year 9.

Prior to commencement of the business Jonathon intends to purchase factory machinery for £15,000. This purchase will be paid for in January. His bank manager has asked for a cash budget and profit statement to support a loan application.

Jonathon has provided the following budgeted information for the first year of trading:

Period (Three months)	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
Sales (£)	20,000	30,000	36,000	44,000
Direct materials purchased (£)	4,500	6,000	7,200	8,400
Direct labour (£)	8,000	10,000	12,000	14,000
Selling expenses (£)	3,000	4,000	4,500	5,000

The following other information is available:

- (1) Sales, which are all on credit, will be spread evenly within each three month period.
- (2) Customers will be allowed a two-month credit period. It is expected that bad debts will account for 1% of the sales value.
- (3) All products will be produced in the month of sale.
- (4) Direct materials, purchased in the month of production, are payable one month after purchase.
- (5) Direct labour is payable in the month incurred.
- (6) 60% of the selling expenses are payable in the period incurred, the balance being paid in the following period.
- (7) Factory overheads, excluding depreciation, are expected to be £5,400 per three month period. 40% of this cost is payable in the period incurred, the balance being paid in the following period.
- (8) Office administration overheads of £500 per month are expected to be payable one month after being incurred.
- (9) Factory machinery is expected to have a 10-year life with no scrap value and will be depreciated in equal instalments over its life.
- (10) Jonathon has applied for a £20,000 bank loan to be received at the start of business.
- (11) No repayment of the loan is expected in the first year of business but interest, at 12% per annum, is payable monthly in the month after it is incurred.
- (12) No stocks of raw materials or finished goods are to be held.

### REQUIRED

For the first year of trading, assuming that the bank loan is received:

- (a) Prepare a cash budget for **each** of the three month periods (14 marks)
- (b) Prepare a single budgeted profit statement. (6 marks)

**(Total 20 marks)**

**MODEL ANSWER TO QUESTION 3**

(a)

	<b>Cash budget</b>			
	£	£	£	£
<b>Receipts</b>	Jan/March	April/June	July/Sept	Oct/Dec
Sales	6,600	23,100	31,680	38,280
Loan	20,000			
Capital	<u>10,000</u>		<u>15,000</u>	
	<u>36,600</u>	<u>23,100</u>	<u>46,680</u>	<u>38,280</u>
<b>Less Payments</b>				
Material	3,000	5,500	6,800	8,000
Labour	8,000	10,000	12,000	14,000
Selling expenses	1,800	3,600	4,300	4,800
Factory overheads	2,160	5,400	5,400	5,400
Office overheads	1,000	1,500	1,500	1,500
Factory machinery	15,000			
Loan interest	<u>400</u>	<u>600</u>	<u>600</u>	<u>600</u>
	<u>31,360</u>	<u>26,600</u>	<u>30,600</u>	<u>34,300</u>

**Cash budget for the year ending December year 9**

Net cash flow	5,240	-3,500	16,080	3,980
Opening bank	<u>0</u>	<u>5,240</u>	<u>1,740</u>	<u>17,820</u>
Closing bank	<u>5,240</u>	<u>1,740</u>	<u>17,820</u>	<u>21,800</u>

(b)

**Budgeted profit statement for the year ending December year 9**

Sales		130,000
Purchase of material	26,100	
Direct labour	44,000	
Factory overheads	21,600	
Depreciation (factory machinery)	<u>1,500</u>	
Cost of sales		<u>93,200</u>
Gross profit		36,800
Selling expenses	16,500	
Office overheads	6,000	
Bad debts	1,300	
Loan interest	<u>2,400</u>	
		<u>26,200</u>
Net profit after interest		<u>10,600</u>

## MODEL ANSWER TO QUESTION 3 CONTINUED

### Workings [part (a)]

	£	£	£	£
<b>Sales receipts</b>				
Sales	20,000	30,000	36,000	44,000
Less bad debts	<u>200</u>	<u>300</u>	<u>360</u>	<u>440</u>
	19,800	29,700	35,640	43,560
Net sales per month	<u>6,600</u>	<u>9,900</u>	<u>11,880</u>	<u>14,520</u>
Cash flow (this three month sales)	1 x 6,600	1 x 9,900	1 x 11,880	1 x 14,520
Cash flow (previous three month sales)	<u>6,600</u>	<u>2 x 6,600</u>	<u>2 x 9,900</u>	<u>2 x 11,880</u>
		<u>23,100</u>	<u>31,680</u>	<u>38,280</u>
<b>Materials payments</b>				
Materials	4,500	6,000	7,200	8,400
Materials per month	<u>1,500</u>	<u>2,000</u>	<u>2,400</u>	<u>2,800</u>
Cash flow (this three month purchase)	2 x 1,500	2 x 2,000	2 x 2,400	2 x 2,800
Cash flow (previous three month purchase)	<u>3,000</u>	<u>1 x 1,500</u>	<u>1 x 2,000</u>	<u>1 x 2,400</u>
		<u>5,500</u>	<u>6,800</u>	<u>8,000</u>
<b>Selling expense payments</b>				
Selling expense	<u>3,000</u>	<u>4,000</u>	<u>4,500</u>	<u>5,000</u>
Cash flow (this three month expense)	60% x 3,000	60% x 4,000	60% x 4,500	60% x 5,000
Cash flow (previous three month expense)	<u>1,800</u>	<u>40% x 3,000</u>	<u>40% x 4,000</u>	<u>40% x 4,500</u>
		<u>3,600</u>	<u>4,300</u>	<u>4,800</u>
<b>Factory overheads payments</b>				
Factory overheads	<u>5,400</u>	<u>5,400</u>	<u>5,400</u>	<u>5,400</u>
Cash flow	40% x 5,400	<u>5,400</u>	<u>5,400</u>	<u>5,400</u>
	<u>2,160</u>			
<b>Loan Interest payment</b>				
Loan interest (£200 per month)	<u>2 x 200</u>	<u>3 x 200</u>	<u>3 x 200</u>	<u>3 x 200</u>
Cash flow	<u>400</u>	<u>600</u>	<u>600</u>	<u>600</u>

Monthly interest =  $12\% \times £20,000/12 = £200$  per month

### Workings [part(b)]

Depreciation:  
 Factory Machinery  $£15,000/10 = £1,500$  per year

#### QUESTION 4

Quality Joints Ltd, who produce a single product (a timber door), are planning to make 1,000 doors in the following year. The production process involves a machining, an assembly and a painting operation. The company uses a standard costing system and the unit production costs are as follows:

##### Direct Material

Timber type A	6 metres at £4 per metre
Timber type B	2 metres at £2 per metre
Hinges (two per door)	£1.20 each
Lock (one per door)	£8.00 each
Paint	0.1 litres at £16 per litre

##### Direct Labour

Machining Department	1.5 hours @ £12 per hour
Assembly Department	2.0 hours @ £9 per hour
Painting Department	0.5 hours @ £8 per hour

Variable factory overheads Absorbed at £6 per direct labour hour in each of the three departments

##### Fixed factory overheads (if absorption costing is applied)

Machining Department Absorbed at a rate of £10 per machine hour  
(The manufacture of each door takes one hour of machine time)

Assembly Department Absorbed at a rate of £8 per direct labour hour

Painting Department Absorbed at a rate of £6 per unit

The selling price is £200 per unit.

Planned production and sales for the first three months of the following year are as follows:

	January	February	March
Production (units)	80	80	90
Sales (units)	70	80	80

There is no stock at the beginning of January.

#### REQUIRED

(a) Produce a single budgeted manufacturing and trading account for the period January to March using:

- (i) Absorption Costing
- (ii) Marginal Costing

(16 marks)

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

(4 marks)

**(Total 20 marks)**

### MODEL ANSWER TO QUESTION 4

(a) Sales for the 3 month period (70+80+80)	230 units
Production output for same period (80+80+90)	250 units
Stock at end of period	20 units

#### Budgeted Manufacturing and Trading account for the 3 month period

(i) <b>Absorption Costing</b>		£	£	£
Sales	(230 x 200)			46,000
Direct materials				
Timber type A	(250 x 6 x 4)	6,000		
Timber type B	(250 x 2 x 2)	1,000		
Hinges	(250 x 2 x 1.20)	600		
Locks	(250 x 8)	2,000		
Paint	(250 x 0.1 x 16)	<u>400</u>		
			10,000	
Direct labour				
Machining Dept	(250 x 1.5 x 12)	4,500		
Assembly Dept	(250 x 2.0 x 9)	4,500		
Painting Dept	(250 x 0.5 x 8)	<u>1,000</u>		
			10,000	
Variable overheads				
Machining Dept	(250 x 1.5 x 6)	2,250		
Assembly Dept	(250 x 2.0 x 6)	3,000		
Painting Dept	(250 x 0.5 x 6)	<u>750</u>		
			6,000	
Fixed overheads				
Machining Dept	(250 x 1 x 10)	2,500		
Assembly Dept	(250 x 2.0 x 8)	4,000		
Painting Dept	(250 x 6)	<u>1,500</u>		
			8,000	
Total cost of production			34,000	
Less Closing stock	(34,000/250 x 20)		<u>2,720</u>	
Production cost of sales				<u>31,280</u>
<b>Gross Profit</b>				<b><u>14,720</u></b>
(ii) <b>Marginal Costing</b>		£	£	£
Sales				46,000
Direct materials		10,000		
Direct labour		10,000		
Variable overheads		<u>6,000</u>		
Variable cost of production			26,000	
Less Closing stock	(26,000/250 x 20)		<u>2,080</u>	
Variable production cost of sales				<u>23,920</u>
Factory contribution				22,080
Less Fixed overheads				<u>8,000</u>
<b>Gross Profit</b>				<b><u>14,080</u></b>
(b) <b>Reconciliation of profits</b>				
Marginal Profit			14,080	
Add fixed element to marginal closing stock (8,000/250 x 20)			<u>640</u>	
Absorption Profit				<u>14,720</u>

Profit difference due to value of closing stock. Under absorption method the fixed production overhead is carried forward in the value of the closing stock whereas in the marginal method it is not.

## QUESTION 5

The standard production costs per unit of a company's single product in a period were:

<b>Direct materials</b>		<b>£</b>
M01	6 kg at £3 per kg	18.00
M02	4 metres at £2 per metre	8.00
<b>Direct labour</b>		
Grade A	4 hours at £8 per hour	32.00
Grade B	2 hours at £10 per hour	20.00
<b>Fixed overheads</b>		<u>22.00</u>
		<u>100.00</u>

Budgeted production for this period was 1,100 units.

Actual production and costs relating to this period were as follows:

**Production** 1,200 units

### **Direct material**

Purchases

M01	7,320 kg purchased at a total cost of £22,960
M02	4,680 metres purchased at a total cost of £9,160

Issues to production

M01	7,100 kg
M02	4,600 metres

### **Direct labour**

Grade A	4,750 hours worked at a total cost of £37,500
Grade B	2,500 hours worked at a total cost of £26,500

Fixed production overheads incurred £24,000

At the beginning of the period the following quantities of raw material were in stock:

M01	200 kg
M02	120 metres

There were no stocks of work in progress at the beginning or end of the period.  
The company's policy is to extract price variance at the time of purchase.

## **REQUIRED**

For this period

(a) Calculate the following variances:

- Direct material price and usage (for each type of raw material)
- Direct labour rate and efficiency (for each grade of labour)
- Fixed overhead expenditure and volume

(14 marks)

(b) Prepare the Raw materials account for each type of direct material.

(6 marks)

**(Total 20 marks)**

**MODEL ANSWER TO QUESTION 5**

(a) (i)	<b>M01</b>	<b>M02</b>
<b>Material Price Variance</b>		
Standard price	£3 per kg	£2 per metre
Purchases Quantity	<u>7,320 kg</u>	<u>4,680 metres</u>
	£21,960	£9,360
Actual cost of purchases	<u>£22,960</u>	<u>£9,160</u>
Material price variance	<b>£1,000A</b>	<b>£200F</b>
<b>Material Usage Variance</b>		
Production	1,200 units	1,200 units
Standard use per unit	6 kg	4 metres
Standard use	7,200 kg	4,800 metres
Actual usage	<u>7,100 kg</u>	<u>4,600 metres</u>
	100 kg	200 metres
Standard price	<u>£3 per kg</u>	<u>£2 per metre</u>
Material usage variance	<b>£300F</b>	<b>£400F</b>
(ii)	<b>Grade A</b>	<b>Grade B</b>
<b>Labour Rate Variance</b>		
Actual hours	4,750	2,500
Standard rate per hour	£8	£10
	£38,000	£25,000
Actual cost of labour	<u>£37,500</u>	<u>£26,500</u>
Labour rate variance	<b>£500F</b>	<b>£1,500A</b>
<b>Labour Efficiency Variance</b>		
Production	1,200 units	1,200 units
Standard hours per unit	<u>4</u>	<u>2</u>
	4,800 hours	2,400 hours
Actual hours	<u>4,750 hours</u>	<u>2,500 hours</u>
	50 hours	100 hours
Standard rate per hour	<u>£8</u>	<u>£10</u>
Labour efficiency variance	<b>£400F</b>	<b>£1,000A</b>
(iii)		
<b>Fixed Overhead Expenditure Variance</b>	(22 x 1,100) – 24,000	= <b>£200F</b>
<b>Fixed Overhead Volume Variance</b>	(1,200 – 1,100) x 22	= <b>£2,200F</b>

(b)	<b>Raw Material Stock Account (M01)</b>		
	£	£	
Bal b/d	600	Price variance	1,000
Purchases	22,960	Work in progress	21,300
	<u>23,560</u>	Bal c/d	<u>1,260</u>
			<u>23,560</u>
	<b>Raw Material Stock Account (M02)</b>		
	£	£	
Bal b/d	240	Work in progress	9,200
Purchases	9,160	Bal c/d	400
Price variance	<u>200</u>		
	<u>9,600</u>		<u>9,600</u>



## QUESTION 6

A company, 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 (15,000 units)		1,080
Direct Costs		
Direct material	315	
Direct labour	285	
Direct expenses	90	
Overheads		
Production	195	
Administration	60	
Selling	<u>168</u>	<u>1,113</u>
Net Loss		<u>33</u>

The following information is available:

- (1) All of the direct costs are variable with production.
- (2) The production overhead figure includes £90,000 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 20,000 units (2 marks)
- (c) the number of units needed to be sold to achieve a profit of £11,000 (2 marks)

The company has set a profit objective of £15,000 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 use and use a less expensive material that would reduce the direct material cost by £2 per unit.

Suggestion 2:

Increase the selling price by £3 per unit and increase advertising expenditure by £43,000. 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.

### REQUIRED

- (d) Calculate for each suggestion how many units need to be sold to achieve the profit objective of £15,000 (9 marks)

**(Total 20 marks)**

## MODEL ANSWER TO QUESTION 6

### (a) Break-even point

Fixed costs / unit contribution	$\pounds 198,000 / \pounds 11 = \mathbf{18,000 \text{ units}}$
Break-even point in value	$18,000 \times \pounds 73 = \mathbf{\pounds 1,296,000}$

Workings:

Direct Costs/Overheads	Variable £000	Fixed £000
Direct material	315	
Direct labour	285	
Direct expenses	90	
Production overhead	105	90
Administration overhead		60
Selling overhead	<u>120</u>	<u>48</u>
Total costs	<u>915</u>	<u>198</u>
Selling price per unit	(1,080,000 / 15,000)	£72
Variable cost per unit	(915,000 / 15,000)	<u>£61</u>
Contribution per unit		<u>£11</u>

### (b) Profit from sale of 20,000 units

Total contribution	20,000 units x £11 per unit	£220,000
Less fixed costs		<u>£198,000</u>
Profit		<u><b>£22,000</b></u>

### (c) Number of unit sales for profit of £11,000

Total contribution required = £11,000 + £198,000	£209,000
Number of unit sales = £209,000 / £11	<b>= 19,000 units</b>

### (d) Suggestion 1

Unit contribution	£11
Less decrease in unit selling price	£3
Plus reduction in material unit cost	£2
New unit contribution	£10
Total contribution required = £15,000 + £198,000	£213,000
Number of unit sales = £213,000 / £10	<b>= 21,300 units</b>

### Suggestion 2

Unit contribution	£11
Plus increase in unit selling price	£3
Plus reduction in material unit cost	£2
New unit contribution	£16 per unit
Fixed costs increase by £43,000 (increase in advertising costs)	
New fixed cost = £198,000 + £43,000	£241,000
Total contribution required = £15,000 + £241,000	£256,000
Number of unit sales = £256,000 / £16	<b>= 16,000 units</b>