

Cost Accounting Level 3



International
Qualifications from EDI

Model Answers Series 3 2011 (3017)

Cost Accounting Level 3

Series 3 2011

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.

© Education Development International plc 2011

All rights reserved; no part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without prior written permission of the Publisher. The book may not be lent, resold, hired out or otherwise disposed of by way of trade in any form of binding or cover, other than that in which it is published, without the prior consent of the Publisher

QUESTION 1

A company, which manufactures two products for the food industry (Product Aye and Product Bee), produces its budgets on a weekly basis. Each product contains three ingredients (ingredient P, Q and R) which are mixed together in the manufacturing process. The finished products contain the following ingredient proportions by weight:

Product	Ingredient P	Ingredient Q	Ingredient R
Aye	30%	30%	40%
Bee	20%	30%	50%

Products are produced in batch sizes of 50 units and the finished product batch weights are expected to be:

Product Aye	6kg
Product Bee	9kg

During the manufacturing process ingredient P is subject to a 10% weight loss, ingredient Q subject to a 40% weight loss and ingredient R suffers no loss.

The following orders have been received for week 25.

Products	Mon	Tues	Weds	Thurs	Fri
Aye (units)	600	800	900	500	400
Bee (units)	300	400	500	300	200

Ingredient P is ordered weekly in advance for a daily JIT delivery on the morning of the day of manufacture. No stock of this ingredient is kept.

Ingredient Q is ordered weekly in advance. The complete week's order being delivered on the Monday morning. The company keeps a stock level, at the end of the week, equivalent to 20% of the week's consumption. Stock level at the end of week 24 is 40 kg.

Ingredient R ordering is based on a reorder level of 600kg and a reorder quantity of 500kg. A delivery lead time of one week is expected. Stock level at the end of week 24 is 1,050kg.

REQUIRED

(a) Determine, for week 25:

- (i) the purchase order quantities for Ingredients P, Q and R
- (ii) the daily delivery schedule for Ingredient P.

(16 marks)

(b) Briefly explain the principles of a just-in-time approach to stock management.

(4 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 1

Syllabus topic 4: Budgetary planning and control (4.4)

Syllabus topic 1: Material and stock control (1.9)

(a)

(i) For week 25

Weight of each ingredient in finished production

	Ingredient P		Ingredient Q		Ingredient R	
	Aye	Bee	Aye	Bee	Aye	Bee
Mon	21.6	10.8	21.6	16.2	28.8	27
Tue	28.8	14.4	28.8	21.6	38.4	36
Wed	32.4	18	32.4	27	43.2	45
Thu	18	10.8	18	16.2	24	27
Fri	<u>14.4</u>	<u>7.2</u>	<u>14.4</u>	<u>10.8</u>	<u>19.2</u>	<u>18</u>
	<u>115.2</u>	<u>61.2</u>	<u>115.2</u>	<u>91.8</u>	<u>153.6</u>	<u>153</u>

(6)

Ingredient P total = $115.2 + 61.2 = 176.4$

Ingredient P (plus manufacturing loss) = $176.4/0.9 = 196$ **1of**

Ingredient Q total = $115.2 + 91.8 = 207$

Ingredient Q (plus manufacturing loss) total = $207/0.6 = 345$ **1of**

Ingredient R total = $153.6 + 153 = 306.6$ **1of**

(3)

MODEL ANSWER TO QUESTION 1 CONTINUED

Budgeted purchase order quantity for week 25

Ingredient P = 196 kg

Ingredient Q

Total required	345
plus closing stock	69
less opening stock	<u>40</u>

Ingredient Q **374** kg (2)

Ingredient R

Opening stock	1,050.0
Less required total	<u>306.6</u>
Closing stock	<u>743.4</u> kg

No order required for ingredient R as closing stock still above reorder level.

(2)

Workings for Monday:

	Aye		Bee	
Order requirement	600		300	
Number of batches	12	(600 / 50)	6	(300 / 50)
Finished product weight	72	(6 x 12)	54	(9 x 6)
Ingredient P	21.6	(72 x 30%)	10.8	(54 x 20%)
Ingredient Q	21.6	(72 x 30%)	16.2	(54 x 30%)
Ingredient R	28.8	(72 x 40%)	27	(54 x 50%)

Budgetary delivery schedule for Ingredient P:

	Mon	Tues	Weds	Thurs	Fri
Weight of ingredient in finished product	= 32.4	43.2	50.4	28.8	21.6
Delivery schedule	= 36	48	56	32	24

(3)

(16 marks)

Workings for Monday:

Weight of ingredient	=	21.6 + 10.8	=	32.4
Delivery schedule	=	32.4 / 0.9	=	36

(b)

Principles of a just in time approach to stock management:
 Stock/materials are delivered just as they are needed for production.
 Stock levels are kept to a minimum - there are no buffer stocks.

(4 marks)

QUESTION 2

Luboil Ltd uses a process system to jointly produce its three main products, (Products A, B and C). By-product D is also produced during the process. After split off, the three main products are filled into containers prior to sale whereas by-product D is sold direct with no additional cost.

Information regarding the joint process for the month of May is as follows:

Input

Material Y	4,000 litres at £1.20 per litre
Material Z	8,000 litres at £0.90 per litre
Direct labour	625 hours at £8.00 per hour

Overheads are absorbed at £12 per direct hour

Output

Product	Quantity	Selling price per kg
Product A	3,600 litres	£5 per 1 litre container
Product B	3,400 litres	£15 per 5 litre container
Product C	3,000 litres	£30 per 10 litre container litre
By-Product D	800 litres	£1 per litre

Process losses (waste), which are as expected, are disposed of at a cost of £0.50 per litre.

Containers for the three products A, B and C cost £0.50, £1.00 and £2.00 each respectively. All containers can be filled at the rate of 200 litres per direct labour hour.

REQUIRED

(a) For the month of May, prepare the account for the joint process using each of the following methods of apportioning joint costs to products:

- (i) Net sales value
- (ii) Physical quantity.

(14 marks)

(b) Define the terms normal loss, abnormal loss and abnormal gain and contrast briefly their accounting treatment.

(6 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 2

Syllabus Topic 2: Costing methods and systems (2.3 and 2.6)

(a)

(i)

Process Account (Net sales value basis)

	Litres	£	Product	Litres	£
Material Y	4,000	4,800 (½)	A	3,600	11,622 (2)
Material Z	8,000	7,200 (½)	B	3,400	6,735 (2)
Direct labour		5,000 (½)	C	3,000	5,943 (2)
Overheads		7,500 (½)	D	800	800 (1)
Waste disposals		<u>600 (1)</u>	Normal loss	<u>1,200</u>	<u> (1)</u>
	<u>12,000</u>	<u>25,100</u>		<u>12,000</u>	<u>25,100</u>

Workings

Waste disposals: $(12,000 - 10,800) \times £0.50 = £600$

Container costs:

£

Product A = $3,600 \times £0.50 = 1,800$

Product B = $3,400 / 5 \times £1 = 680$

Product C = $3,000 / 10 \times £2 = 600$

Labour / overhead costs

£

Product A = $3,600 / 200 \times (8 + 12) = 360$

Product B = $3,400 / 200 \times (8 + 12) = 340$

Product C = $3,000 / 200 \times (8 + 12) = 300$

Income

£

Total costs £

Net Sales £

Product A = $3,600 \times £5 = 18,000$ 2,160 15,840

Product B = $3,400 / 5 \times £15 = 10,200$ 1,020 9,180

Product C = $3,000 / 10 \times £30 = 9,000$ 900 8,100

33,120

Apportionment:

£

Product A = $(25,100 - 800) \times 15,840 / 33,120 = 11,622$

Product B = $(25,100 - 800) \times 9,180 / 33,120 = 6,735$

Product C = $(25,100 - 800) \times 8,100 / 33,120 = 5,943$

(a)

(ii)

Process Account (Physical quantity basis)

	Litres	£	Product	Litres	£
Material Y	4,000	4,800	A	3,600	8,748 (1)
Material Z	8,000	7,200	B	3,400	8,262 (1)
Direct labour		5,000	C	3,000	7,290 (1)
Overheads		7,500	D	800	800
Waste disposals		<u>600</u>	Normal loss	<u>1,200</u>	<u> </u>
	<u>12,000</u>	<u>25,100</u>		<u>12,000</u>	<u>25,100</u>

(14 marks)

QUESTION 2 CONTINUED

Workings

Joint product costs

	£
Product A = $(25,100 - 800) \times 3,600 / 10,000 =$	8,748
Product B = $(25,100 - 800) \times 3,400 / 10,000 =$	8,262
Product C = $(25,100 - 800) \times 3,000 / 10,000 =$	<u>7,290</u>
	<u>24,300</u>

(b)

Normal loss:	A loss that is expected in production under normal operating conditions.	(1)
Abnormal loss:	A loss that exceeds the normal loss.	(1)
Abnormal gain:	A gain over the expected finished goods output.	(1)

Normal losses are built into the cost of good units. Any scrap value arising is normally deducted from the cost of material input. Abnormal losses/gains do not affect unit costs as they are separately valued as if they were completed production and are charged as a separate cost item.

(3)

(6 marks)

QUESTION 3

A company uses two different raw materials (RM1 & RM2) which it obtains from an outside supplier. The following information is provided relating to each raw material:

Raw Material RM1

Order quantity 2,000 kg

Purchase price £8.00 per kg

Stock holding costs are 20% of the average stockholding per annum.

The lead time for delivery can vary between 4 and 10 days and the rate of usage varies between 30kg and 40kg per day. The company has a policy of holding safety stock.

REQUIRED

(a) For raw material RM1 calculate:

- (i) the reorder level
- (ii) the minimum and maximum stock control levels
- (iii) the annual stock holding costs.

(8 marks)

The company maintains stock records that clearly show the physical stock, allocated stock, amount on order and free stock.

The stock record card for raw material RM2 recorded the following information and balances at the beginning of month 6:

Reorder level	500kg of free stock
Reorder quantity	400kg
Physical stock in stores	250kg
Allocated stock	50kg
Amount on order	400kg

The following transactions relating to raw material RM2 took place in month 6:

Date

- 2nd 40kg allocated to job number 121
- 3rd 50kg issued to job number 116 (previously allocated)
- 4th 80kg issued to job number 122 (not previously allocated)
- 8th Materials ordered at end of month 5 received
- 10th 50kg allocated to job number 117
- 15th 100kg returned to supplier as faulty. Supplier agreed to replace
- 20th 10kg of surplus material from job number 116 returned to stock
- 27th Supplier replaced material returned on 15th of month.

REQUIRED

(b) Write up the detailed stock record card for raw material RM2 for month 6.

(8 marks)

(c) Briefly explain the meaning of:

- (i) re-order level
- (ii) allocated stock
- (iii) free stock.

(4 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 3

Syllabus Topic 1: Materials and stock control (1.3, 1.7 & 1.8)

- (a) Raw material RM1
- (i) Reorder level
 = maximum usage x maximum lead time
 = 40 x 10 = **400kg** (1)
 1
- (ii) Minimum stock control level
 = Re-order level - (average use x average lead time)
 = 400 - (35 x 7) = **155kg** (2)
 1OF 1
- Maximum stock control level
 = Re-order level - (minimum use x minimum lead time) + re-order quantity
 = 400 - (30 x 4) + 2,000 = **2,280kg** (3)
 1OF 1 1
- (iii) Annual stock holding costs
 = 20% x average stock x cost of material per kg
 = 20% x 1,155 x £8 **1OF**
 = **£1,848** (2)

workings: Average stock = order quantity / 2 + minimum stock control level
 = 2,000/2 + 155 = 1,155kg **1OF**

(8 marks)

- (b) Stock Record Card: Material RM2
 Re-order level 500 kg of free stock
 Re-order quantity 400kg

Date	Receipts (kg)	Issues (kg)	Stock in hand (kg)	Allocated stock (kg)	Stock on order (kg)	Free stock (kg)	
Month 6							
1st			250	50	400	600	½
2nd			250	90	400	560	½OF
3rd		50	200	40	400	560	
4th		80	120	40	400	480	½OF
4th			120	40	800	880	½OF
8th	400		520	40	400	880	
10th			520	90	400	830	½OF
15th		100	420	90	500	830	
20th	10		430	90	500	840	½OF
27th	100		530	90	400	840	1
	(½)	(½)	(1)	(1)	(1)	(4)	

(8 marks)

QUESTION 3 CONTINUED

- (c) (i) **Re-order level**
The stock level at which the business re-orders more stock. (1)
- (ii) **Allocated stock**
Stock that has been scheduled for use. (1)
- (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). (2)
- (4 marks)**

QUESTION 4

A company, which produces three products for the motor industry, has just completed its budget for its first period of trading. The summary of the budgeted profit and loss account for this period is set out below:

	£	£
Sales: Product A	400,000	
Product B	300,000	
Product C	<u>100,000</u>	800,000
Less: Variable costs	480,000	
Fixed costs	<u>200,000</u>	<u>680,000</u>
Net Profit		<u>120,000</u>

REQUIRED

Assuming that the above sales prices, mix and existing cost structure will remain the same at increased output levels.

- (a) Calculate the contribution/sales ratio. (2 marks)
- (b) Calculate the break-even sales revenue. (2 marks)
- (c) Calculate the sales revenue that will be required to achieve a target profit of £160,000. (2 marks)
- (d) Calculate the profit that will result from expected sales revenue of £1,000,000. (2 marks)
- (e) Draw a contribution break-even chart for the budgeted sales mix. Indicate clearly on the chart the contribution area, the break-even revenue and the target profit. The chart should start at zero and extend up to £1,200,000 sales revenue. (8 marks)

The company is considering reducing its sale prices by 10%.

REQUIRED

- (f) Calculate the sales revenue required, based on the budgeted sales mix and existing costs to achieve the target profit of £160,000. (4 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 4

Syllabus Topic 3: Cost -volume-profit analysis (3.1,3.2,3.4, & 3.5)

(a) Contribution = £800,000 - £480,000 = £320,000
Contribution /sales ratio = 320,000 / 800,000 x 100%
= **0.40**

(2 marks)

(b) Break-even sales revenue = 200,000 / 0.40
= **£500,000**

(2 marks)

(c) Target sales = (£160,000 + £200,000) / 0.4
= **£900,000**

(2 marks)

(d) Profit from an expected sales revenue of £1,000,000
= (1,000,000 x 0.4) - £200,000
= **£200,000**

(2 marks)

(e) Contribution break-even chart

Title	(1)	Break-even revenue	(1)
Labels	(1)	Contribution area	(1)
Lines	(3)	Target profit	(1)

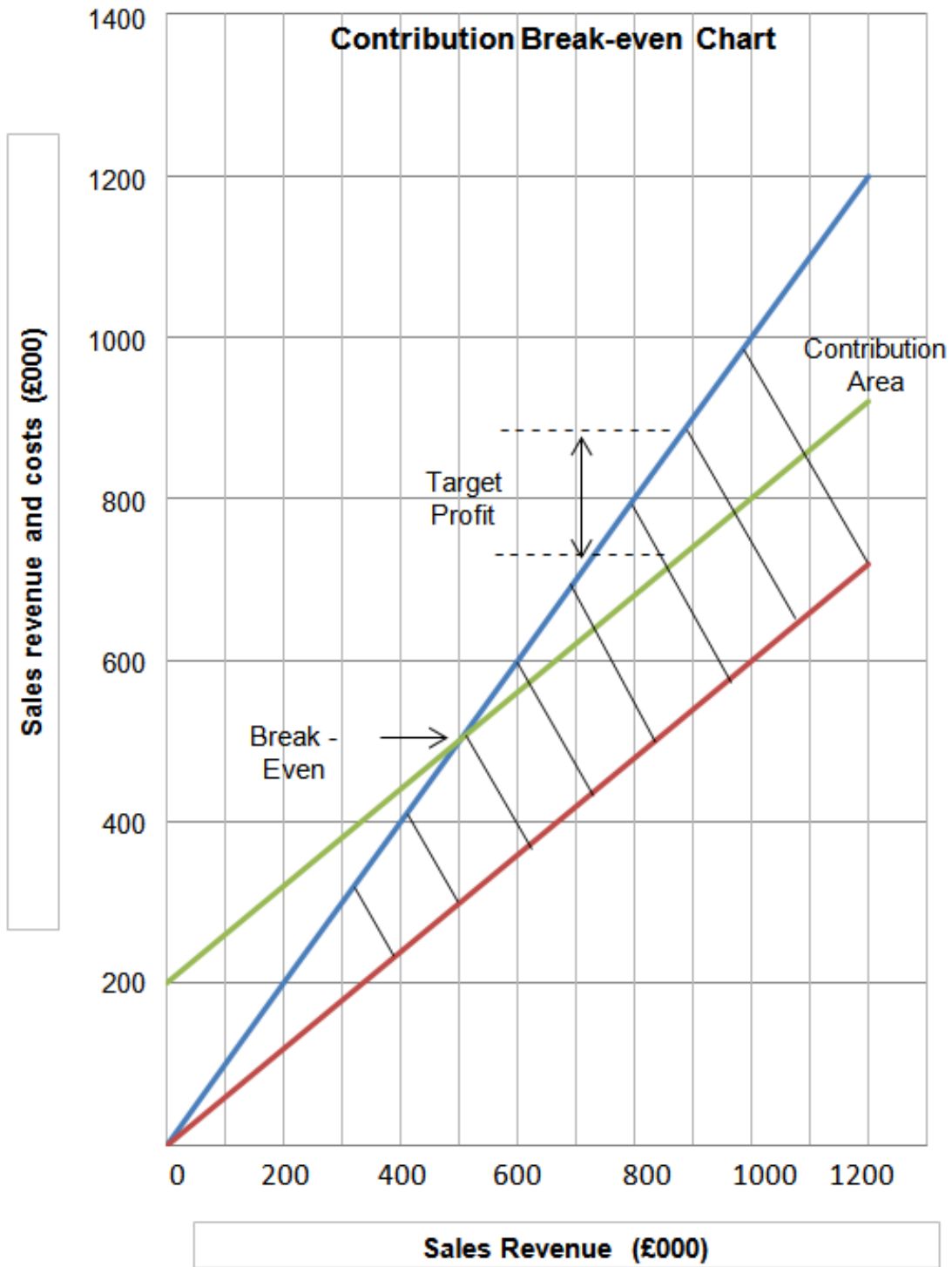
(8 marks)

(f) Contribution required for target profit of £160,000
= £160,000 + £200,000 = £360,000 **(1)**
Contribution / sales ratio at reduced sales price
= [(0.90 - 0.60) / 0.90] x 100% = 33.33% **(2)**
Sales revenue required
= £360,000 / 33.33% = **£1,080,000** **(1)**

(4 marks)

QUESTION 4 CONTINUED

(e)



Title	(1)	Break-even revenue	(1)
Labels	(1)	Contribution area	(1)
Lines	(3)	Target profit	(1)

QUESTION 5

The standard production costs of a company's single product are:

Direct material per unit	10 kg @ £4 per kg
Direct labour per unit	2 hours @ £8 per hour
Fixed overheads	£12 per direct labour hour

Budgeted production and sales for month 5 were 500 units and the budgeted selling price was £100 per unit.

Actual sales and costs recorded in month 5 were as follows:

Sales	520 units
Revenue from sales	£49,400
Direct material used	4,250kg at a total cost of £18,600
Direct labour	915 hours at a total cost of £6,920
Fixed overheads	£11,880

All production was sold during the period and there was no opening stock at the beginning of month 5.

REQUIRED

For the month 5:

- (a) Calculate:
- (i) the budgeted gross profit
 - (ii) the actual gross profit.
- (2 marks)
- (b) Calculate the following production ratios (to two decimal places):
- (i) Efficiency
 - (ii) Capacity.
- (4 marks)
- (c) Calculate the following variances:
- (i) Selling price
 - (ii) Sales volume profit
 - (iii) Direct material price
 - (iv) Direct material usage
 - (v) Direct labour rate
 - (vi) Direct labour efficiency
 - (vii) Fixed production overhead expenditure
 - (viii) Fixed production overhead volume.
- (10 marks)
- (d) Reconcile the budgeted gross profit with the actual gross profit using the variances calculated in part (c).
- (4 marks)
- (Total 20 marks)**

MODEL ANSWER TO QUESTION 5

Syllabus Topic 5: Standard costing and variances (5.3,5.4,5.8,5.11,5.14 & 5.18)

(a) (i)	Budgeted gross profit		£
	Direct material	(10 x £4)	40
	Direct labour	(2 x £8)	16
	Fixed overheads	(2 x £12)	<u>24</u>
	Unit cost		<u>80</u>
	Unit profit	(100 - 80)	<u>20</u>
	Gross profit	(£20 x 500)	<u>10,000</u>

(ii)	Actual gross profit		£
	Sales		49,400
	Direct material	18,600	
	Direct labour	6,920	
	Fixed overheads	<u>11,880</u>	
	Cost of sales		<u>(37,400)</u>
	Gross profit		<u>12,000</u>

(2 marks)

(b) (i) **Production efficiency ratio (%)**

$$\frac{\text{Standard direct labour hours of actual production} \times 100\%}{\text{Actual direct labour hours worked}}$$
$$= \frac{520 \times 2}{915} \times 100\% = 113.66\%$$

(ii) **Production capacity ratio (%)**

$$\frac{\text{Actual direct labour hours worked} \times 100\%}{\text{Budgeted direct labour hours}}$$
$$= \frac{915}{500 \times 2} \times 100\% = 91.50\%$$

(4 marks)

QUESTION 5 CONTINUED

(c)	Variance			
(i)	Selling price	$520 \times 100 - 49,400$		2,600A (2)
(ii)	Sales volume profit	$(500 - 520) \times 20$		400F (2)
(iii)	Material price	$18,600 - (4 \times 4,250)$	1,600A	(1)
(iv)	Material usage	$4 \times 4,250 - (4 \times 520 \times 10)$	3,800F	(1)
(v)	Labour rate	$6,920 - (8 \times 915)$	400F	(1)
(vi)	Labour efficiency	$8 \times 915 - (8 \times 520 \times 2)$	1000F	(1)
(vii)	Fixed o/h expenditure	$11,880 - (12 \times 2 \times 500)$	120F	(1)
(viii)	Fixed o/h volume	$(12 \times 2 \times 500) - (12 \times 2 \times 520)$	<u>480F</u>	(1)

Total cost variance 4,200F
(10 marks)

(d)	Reconciliation			
	Budgeted gross profit		£10,000	(10F)
	Selling price variance	2,600A	(½OF)	
	Sales volume profit variance	400F	(½OF)	
	Total cost variance	<u>4,200F</u>	(10F)	
			<u>£2,000F</u>	(10F)
	Actual gross profit		<u>£12,000</u>	

(4 marks)

EDI

International House
Siskin Parkway East
Middlemarch Business Park
Coventry CV3 4PE
UK

Tel. +44 (0) 8707 202909

Fax. +44 (0) 2476 516505

Email. enquiries@ediplc.com

www.ediplc.com



International
Qualifications from EDI