

## **Cost Accounting Level 3**



International  
Qualifications from EDI

### **Model Answers** Series 2 2010 (3017)

# Cost Accounting Level 3

## Series 2 2010

### 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 2010

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 manufactures its single product in batch sizes of 50 units. The customer requirement for period 3 is 4,500 units.

Each unit of the product contains two materials (material A and material B) which are cleaned and then processed together in a weight ratio of 4:1 respectively.

Prior to processing, each material is subject to a cleaning operation, which results in a weight loss of 20% for material A. No other losses occur during the manufacturing process.

The following further information is available:

- (1) Finished weight of completed unit 5kg
- (2) Material A costs £5 per kg
- (3) Material B costs £10 per kg
- (4) Product inspection rejection rate 10%
- (5) Direct labour £400 per batch
- (6) Fixed production overheads for the period are £50,000
- (7) Material A waste, due to the cleaning process, can be sold back to the supplier at £4 per kg
- (8) Rejected products can also be sold back to the supplier at £20 per reject
- (9) No stocks of finished products are kept
- (10) Stock of Material A at start of period 3 is expected to be 5,000kg
- (11) Stock of Material B at start of period 3 is expected to be 1,000kg
- (12) At the end of period 3 the company intend to reduce the material stock levels by 20%

## REQUIRED

Calculate for period 3, the:

- (a) total number of product batches to be manufactured and the total weight of material A and B of material (before cleaning) to be introduced into the manufacturing process. (5 marks)
- (b) total weight of material A and of material B to be purchased from the supplier. (5 marks)
- (c) total revenue received from the supplier for:
  - (i) product inspection rejects
  - (ii) material waste. (4 marks)
- (d) total manufacturing profit, if all rejects and material waste is sold back to the supplier, and the selling price of the finished product is £60 per unit. (6 marks)

**(Total 20 marks)**

## MODEL ANSWER TO QUESTION 1

### (a) Weight of material introduced into process

Customers requirement (period 3)	4,500 units	
Production required allowing for 10% rejects ( $4,500 / 0.9$ )	5,000 units	
Batches required ( $5,000 / 50$ )		<b>100 batches</b>
Weight of material A in final product	4 kg	
Weight of material A prior to cleaning process ( $4 / 0.8$ )	5kg	
Total weight of material A introduced into process ( $5 \times 5,000$ )		<b>25,000 kg</b>
Total weight of material B introduced into process ( $1 \times 5,000$ )		<b>5,000 kg</b>
		<b><u>30,000 kg</u></b>

### (b) Weight of material purchased from supplier

Opening stock of material A (period 3)	5,000 kg	
Closing stock of material A (period 3) ( $80\% \times 5,000$ )	<u>4,000 kg</u>	
Reduction in stock level	<u>1,000 kg</u>	
Opening stock of material B (period 3)	1,000 kg	
Closing stock of material B (period 3) ( $80\% \times 1,000$ )	<u>800 kg</u>	
Reduction in stock level	<u>200 kg</u>	
Material A purchased from supplier ( $25,000 - 1,000$ )	<b>24,000 kg</b>	
Material B purchased from supplier ( $5,000 - 200$ )	<b>4,800 kg</b>	

### (c) Income received from rejects and waste

(i) Number of units rejected = ( $5,000 - 4,500$ )	500 units	<b>£10,000</b>
Income received = ( $500 \times £20$ )		
(ii) Material A waste = ( $20\% \times 25,000$ )	5,000kg	<b>£20,000</b>
Income received = ( $5,000 \times £4$ )		

### QUESTION 1 CONTINUED

#### (d) Manufacturing profit

	£	£	£
Sales	(4,500 x £60)		270,000
Manufacturing cost of sales			
Material A	(25,000 x £5)	125,000	
Material B	(5,000 x £10)	50,000	
Labour	(100 x £400)	40,000	
Fixed overheads		<u>50,000</u>	
		265,000	
less			
Income from rejects	10,000		
Income from waste	20,000		
		<u>30,000</u>	
			<u>235,000</u>
			<u>35,000</u>

## QUESTION 2

Triple Products Ltd uses a process system to jointly produce its three main products, (Product A, B and C). By-product D is also produced during the process.

Information regarding the joint process for the last period is as follows:

### Output

Product	Quantity	Selling price per kg
Product A	8,000 kg	£22.50
Product B	6,000 kg	£20.00
Product C	5,000 kg	£16.00
By-product D	2,000 kg	£4.00

Process losses (scrap), which are as expected, are disposed of at a cost of £2.00 per kg.

### Input

Raw material X	10,000 kg at £4 per kg
Raw material Y	12,000 kg at £5 per kg
Direct labour	4,000 hours at £8 per hour
Overheads are absorbed at	£12 per direct labour hour

Further processing:

Product B requires an additional 0.25 direct labour hours per kg of output for finishing.

Product C is packed in containers which hold 5 kg of the product and cost £1 each.

20 containers can be filled in one direct labour hour.

Products A and D can be sold without any further operations.

There was no work in progress or finished goods stock at the beginning or the end of the period.

Joint processing costs are apportioned on the basis of net sales value.

### REQUIRED

- (a) Prepare the joint process account for the last period. (10 marks)
- (b) Prepare the profit statement for the last period. (6 marks)
- (c) Explain the meaning of:
- (i) joint products
  - (ii) by-product. (4 marks)

**(Total 20 marks)**

**MODEL ANSWER TO QUESTION 2**

(a)

<b>Process account</b>					
	<b>Kg</b>	<b>£</b>		<b>Kg</b>	<b>£</b>
Material X	10,000	40,000	Product A	8,000	90,000
Material Y	12,000	60,000	Product B	6,000	45,000
Direct Labour		32,000	Product C	5,000	39,000
Overheads		48,000	Product D	2,000	8,000
Scrap disposals		<u>2,000</u>	Normal loss	<u>1,000</u>	
	<u>22,000</u>	<u>182,000</u>		<u>22,000</u>	<u>182,000</u>

Workings

Product B finishing costs =	$6,000 \times 1/4 \times (8 + 12) = 30,000$
Product C container cost =	$(5,000 / 5) \times £1 = £1,000$
Product C labour cost =	$(1,000 / 20) \times (8 + 12) = £1,000$

Product	Income(£) -	Further processing costs(£) =	Net sales(£)
A	$8,000 \times £22.50$	0	180,000
B	$6,000 \times £20$	30,000	90,000
C	$5,000 \times £16$	2,000	<u>78,000</u>
			<u>348,000</u>

Apportionment

Product		=	
A	$(182,000 - 8,000) \times (180,000 / 348,000)$	=	£90,000
B	$(182,000 - 8,000) \times (90,000 / 348,000)$	=	£45,000
C	$(182,000 - 8,000) \times (78,000 / 348,000)$	=	£39,000

(b)

Product	<b>Profit statement for the last period</b>			
	<b>A</b>	<b>B</b>	<b>C</b>	
	<b>£</b>	<b>£</b>	<b>£</b>	
Sales	180,000	120,000	80,000	
Less				
Joint Process costs	90,000	45,000	39,000	
Further processing costs	<u>0</u>	<u>30,000</u>	<u>2,000</u>	
Profit	<u>90,000</u>	<u>45,000</u>	<u>39,000</u>	<b>Total profit = £174,000</b>

- (c) (i) Joint Products  
Two or more products separated in processing, each having a sufficiently high saleable value to merit recognition as a main product.
- (ii) By-Product  
A product that has commercial value but is not the product, or products, for which the production process is intended.

### QUESTION 3

Makit Ltd plans to sell 120,000 units of its single product in a period at a selling price of £15 per unit. Fixed overheads and net profit are expected to be £420,000 and £300,000 respectively for the period using the existing production process.

The company is considering a change to its production process, which would increase the fixed overheads to £560,000 in the period and reduce the variable costs to £8 per unit. The selling price will be the same regardless of production process.

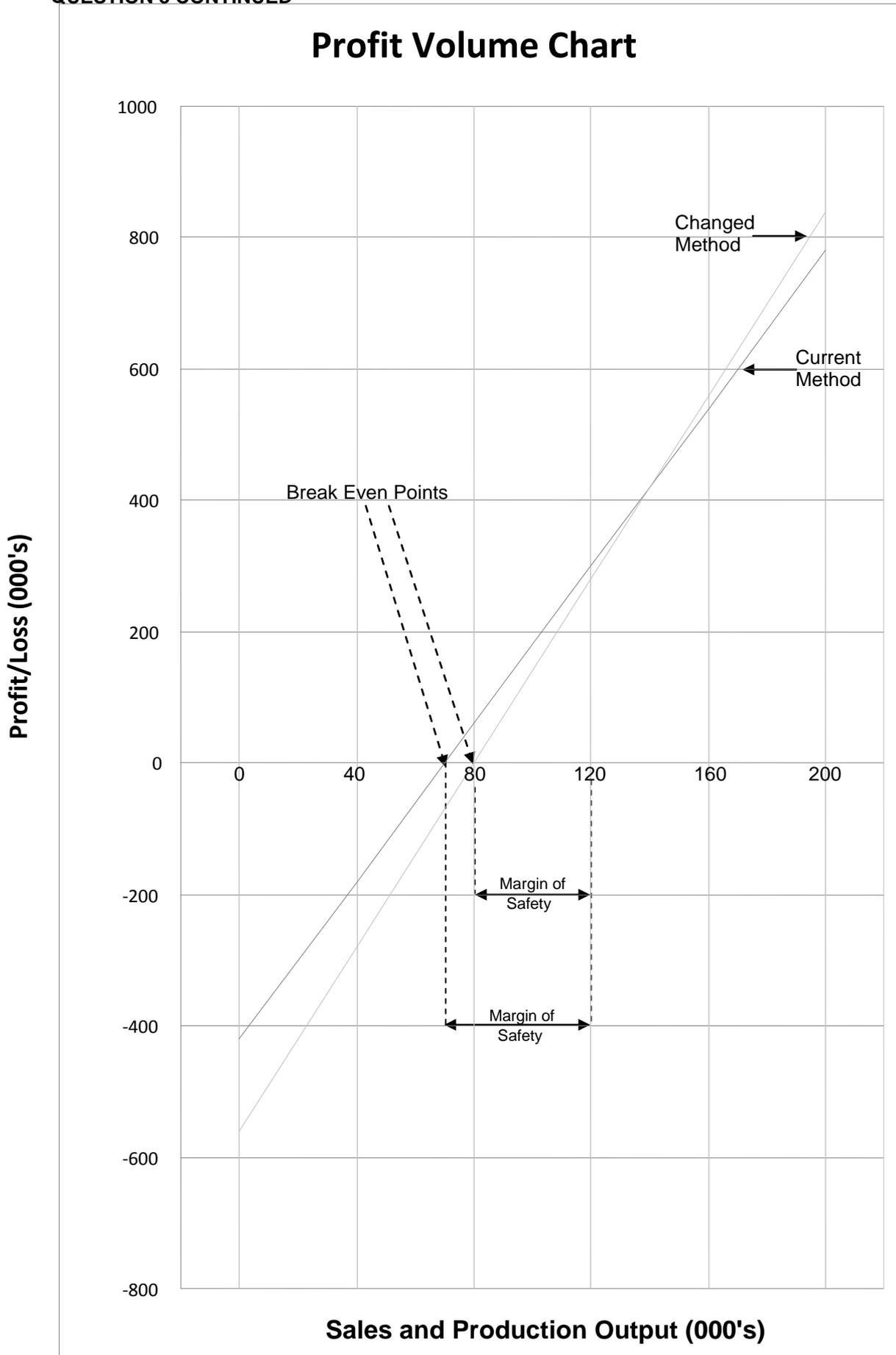
#### REQUIRED

- (a) Calculate, for each production processes, the break-even point (in units) and the margin of safety (as a percentage of the sales).  
(4 marks)
- (b) Advise management, using supporting calculations, whether the changed production process is more profitable than the existing process at the planned output.  
(4 marks)
- (c) Calculate the number of units that need to be sold for the profits from both the existing process and the changed process to be equal.  
(4 marks)
- (d) Draw a profit/volume chart for the period, showing the profit arising both from the existing and the changed production processes, for sales up to 200,000 units. Clearly indicate on the chart the break-even point and the margin of safety for each production processes.  
(8 marks)

**(Total 20 marks)**



QUESTION 3 CONTINUED



#### QUESTION 4

Sole Products Ltd, which manufactures a single product, is budgeted to produce and sell 12,000 units in month 3. The standard selling price and standard production costs for month 3 are as follows:

Selling Price	£17.50 per unit
Direct material	1.5 kg @ £5 per kg
Direct labour	0.5 hours @ £8 per hour
Fixed production overheads	£2.00 per unit

The actual results recorded in month 3 were as follows:

Production	10,000 units
Sales	10,500 units
Selling Price	£18.50 per unit
Direct material purchased and used	£88,200 @ £6 per kg
Direct labour	£44,000 @ £8 per hour
Fixed production overheads	£18,000

Finished goods stock of 1,000 units at the start of month 3 was valued at the standard production cost per unit. No stock of direct material was carried forward from month 2.

#### REQUIRED

- (a) Calculate for month 3:
- (i) the standard gross profit on actual sales
  - (ii) the actual gross profit.
- (4 marks)
- (b) Calculate the following variances for month 3:
- (i) sales volume profit
  - (ii) sales price
  - (iii) total direct material
  - (iv) total direct labour
  - (v) total fixed production overhead.
- (9 marks)
- (c) Calculate the following production ratios for month 3:
- (i) activity (production volume)
  - (ii) efficiency.
- (4 marks)
- (d) Explain the meaning of the term standard hour.
- (3 marks)

**(Total 20 marks)**

## MODEL ANSWER TO QUESTION 4

(a)

Standard gross profit per unit

	£	£
Selling price		17.50
Direct material (1.5 x £5)	7.50	
Direct labour (0.5 x £8)	4.00	
Fixed production overhead	<u>2.00</u>	
		<u>13.50</u>
Gross profit		<u>4.00</u>

(i) Standard gross profit on actual sales

$$10,500 \times £4.00 = \mathbf{£42,000}$$

(ii) Actual gross profit

	£	£
Sales (10,500 x £18.50)		194,250
less cost of production		
Direct material	88,200	
Direct labour	44,000	
Fixed production overhead	<u>18,000</u>	
	150,200	
plus opening stock of finished products	13,500	
less closing stock of finished products	<u>6,750</u>	
		<u>156,950</u>
Actual gross profit		<u><b>37,300</b></u>

### Workings

$$\text{Opening stock } 1,000 \text{ units at } £13.50 = £13,500$$

$$\text{Closing stock (units)} = 1,000 + 10,000 - 10,500 = 500 \text{ units}$$

$$\text{Closing stock (value)} = 500 \times £13.50 = £6,750$$

(b) Variances

(i) Sales volume profit

		£
Budgeted sales x standard profit	12,000 x £4	48,000
Actual sales x standard profit	10,500 x £4	<u>42,000</u>
		<u><b>6,000</b></u> A

(ii) Sales price variance

Actual units x actual selling price	10,500 x £18.50	194,250
Actual units x standard selling price	10,500 x £17.50	<u>183,750</u>
		<u><b>10,500</b></u> F

#### QUESTION 4 CONTINUED

(iii)	Total direct material			
	Actual price x actual usage		88,200	
	Standard price x standard usage	(10,000 x £7.50)	<u>75,000</u>	
			<u><b>13,200</b></u>	<b>A</b>
(iv)	Total direct labour			
	Actual rate x actual hours		44,000	
	Standard rate x standard hours	(10,000 x £4.00)	<u>40,000</u>	
			<u><b>4,000</b></u>	<b>A</b>
(v)	Total fixed production overhead			
	Actual overhead incurred		18,000	
	Total overhead absorbed	10,000 x £2.00	<u>20,000</u>	
			<u><b>2,000</b></u>	<b>F</b>

(c)

Production ratios

Activity ratio

$$\frac{\text{Standard hours}}{\text{Budgeted hours}} = \frac{10,000 \times 0.50}{12,000 \times 0.50} = \mathbf{83.33\%}$$

Efficiency

$$\frac{\text{Standard hours}}{\text{Actual hours}} = \frac{10,000 \times 0.50}{44,000 / 8} = \mathbf{90.90\%}$$

(d) Standard hour

The term standard hour refers to the quantity of work achievable in the hour given that standard workings conditions will be maintained.

## QUESTION 5

Singular Ltd, which manufactures a single product, has prepared the following budget for the next period:

Production /sales units	10,800	
	£	£
Sales revenue		172,800
Direct materials	43,200	
Labour	39,000	
Production overheads	44,500	
Selling and distribution overhead	8,500	
Administration overheads	<u>10,000</u>	
Total costs		<u>145,200</u>
Profit		<u>27,600</u>

The following points have been revealed concerning the budget:

- (1) The budget is based on 90% utilisation of maximum capacity.
- (2) Direct material costs vary directly with output.
- (3) Labour includes a fixed and a variable cost. The variable cost is £2.50 per unit.
- (4) Production overheads include a fixed and variable cost. The variable cost varies directly with output and the total overhead cost, at maximum capacity, is £46,900
- (5) Selling and distribution overheads include a fixed and variable cost. The variable cost varies direct with output and the fixed element is £3,100.
- (6) Administration overheads are fixed.

### REQUIRED

(a) Prepare flexed budgets for the period at:

- (i) 100% utilisation of maximum capacity
- (ii) 80% utilisation of maximum capacity.

(15 marks)

(b) Calculate for each of the three levels of output (i.e. 80%, 90% and 100% utilisation of maximum capacity):

- (i) variable cost per unit
- (ii) total cost per unit.

(5 marks)

**(Total 20 marks)**

## MODEL ANSWER TO QUESTION 5

(a)

Flexed budgets for the period at 80%, 90% and 100% utilisation of maximum capacity

Capacity	80%		90%		100%	
Production/sales units	9,600		10,800		12,000	
	£	£	£	£	£	£
Sales revenue		153,600	$\frac{1}{2}$	172,800		192,000
Direct materials	38,400		43,200		48,000	
Labour	36,000		39,000		42,000	
Production overheads	42,100		44,500		46,900	
Selling and distribution costs	7,900		8,500		9,100	
Administration costs	<u>10,000</u>		<u>10,000</u>		<u>10,000</u>	
Total budgeted costs		<u>134,400</u>		<u>145,200</u>		<u>156,000</u>
Budgeted profit		<u>19,200</u>		<u>27,600</u>		<u>36,000</u>

(b)

Budgeted capacity	80%	90%	100%
(i) Variable cost per unit (£)	9.00	9.00	9.00
(ii) Total cost per unit (£)	14.00	13.44	13.00

**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](mailto:enquiries@ediplc.com)

[www.ediplc.com](http://www.ediplc.com)