

Cost Accounting Level 3



Model Answers

Series 2 2007 (Code 3016)

Cost Accounting Level 3

Series 2 2007

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.

© Education Development International plc 2007

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

Triple Products Ltd uses a batch production method to manufacture its three products Alpha, Beta and Gamma. 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:

	Alpha	Beta	Gamma
Production output (units)	6,000	5,000	4,000
Production batch size (units)	30	50	20
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	24,000
Machine maintenance	12,000
Product despatch	11,200
Material handling	<u>7,500</u>
	<u>99,700</u>

Other information

- (i) Orders budgeted: Alpha 100 orders; Beta and Gamma 50 orders each. Each order is expected to require one machine set up
- (ii) One unit of 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: Alpha 20 units, Beta 50 units and Gamma 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	Alpha	Beta	Gamma
Output	6,000	5,000	4,000
Batch size	30	50	20
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 (A + B + G)	3,000hrs		
Fixed overheads for period	£88,500		
Overhead absorption rate	£29.50 per machine hour		

(a) Batch cost (Traditional absorption costing)

Product	Alpha	Beta	Gamma
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.	<u>570.00</u>	<u>748.00</u>	<u>871.50</u>

(b) Batch cost (Activity based costing)

Overhead

Product inspection

Total overhead	£45,000		
No of inspections	1,500	(600 + 500 + 400)	
Overhead rate per inspection	£30 per inspection	(45,000 / 1,500)	

	Alpha	Beta	Gamma
Overhead per batch	(3 x 30)	(5 x 30)	(2 x 30)
Overhead per batch	£90	£150	£60

Machine set-up

Total overhead	£24,000		
No of set-ups	200	(100 + 50 + 50)	
Overhead rate per set-up	£120 per set-up	(£24,000 / 200)	
Overhead per batch	(0.5 x 120)	(0.5 x 120)	(0.25 x 120)
Overhead per batch	£60	£60	£30

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)	

	Alpha	Beta	Gamma
Overhead per batch	(6 x 4)	(8 x 4)	(5 x 4)
Overhead per batch	£24	£32	£20

MODEL ANSWER TO QUESTION 1 CONTINUED

Product despatch

Total overhead	£11,200	
No of crates	560	(300 + 100 + 160)
Overhead rate	£20 per crate	(£11,200 / 560)

	Alpha	Beta	Gamma
Overhead per batch	(1.5 x 20)	(1 x 20)	(0.8 x 20)
Overhead per batch	£30	£20	£16

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)

	Alpha	Beta	Gamma
Overhead per batch	(20 x 0.5)	(30 x 0.5)	(40 x 0.5)
Overhead per batch	£10	£15	£20

Batch costs (£)

	Alpha	Beta	Gamma
Material	300.00	450.00	600.00
Labour	72.00	48.00	96.00
Overheads			
Inspection	90.00	150.00	60.00
Machine set-up	60.00	60.00	30.00
Machine maintenance	24.00	32.00	20.00
Product despatch	30.00	20.00	16.00
Material handling	<u>10.00</u>	<u>15.00</u>	<u>20.00</u>
	<u>586.00</u>	<u>775.00</u>	<u>842.00</u>

QUESTION 2

A company, which produces a single component for the motor industry, has budgeted to make 6,000 units in a year. The components sell for £80 each. The standard unit variable production costs are as follows:

Direct material A	2 kg at £4.50 per kg.
Direct material B	4 kg at £1.20 per kg.
Direct labour	1.5 hours at £8 per hour.
Variable overheads	Absorbed at £6.00 per unit.

Fixed factory overheads, absorbed at a predetermined rate based on direct labour hours, are expected to be £36,000 for the year and are expected to occur evenly.

The following actual information is available for the first six months of the year:

Opening stock of components	150 units
Sale of components	2,750 units
Closing stock of components	200 units

Actual fixed overheads for the six months were equal to budget. Actual variable costs per unit were as per standard cost.

REQUIRED

(a) Calculate for the first six months of the year:

- (i) the actual costs incurred in production
- (ii) the over/under absorption of fixed production overheads.

(11 marks)

(b) Prepare a trading account, for the first six months of the year in absorption costing format, clearly showing any over/under absorption of overheads.

(9 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 2

(a)

Workings

Labour time for one unit	1.50 hours
Budgeted output	6,000 units
Total labour hours	9,000 hours
Budgeted fixed production overheads	£36,000
Fixed production overhead absorption rate	£4.00 per labour hour

(i) Cost of Production

Unit cost of Production	
	£
Material A	9.00
Material B	4.80
Direct labour	12.00
Variable overheads	<u>6.00</u>
Total Variable costs	<u>31.80</u>
Production in the first six months (units)	
Sales	2,750
Closing stock	200
Less opening stock	<u>150</u>
Production	<u>2,800</u>

Total Cost of Production for the first six months:

Variable cost (2,800 x 31.80)	89,040
Fixed cost (36,000 / 2)	<u>18,000</u>
Total cost	<u>107,040</u>

(ii) Over/under absorption of fixed overheads

Actual fixed overheads	(36,000/2)	18,000
Overheads absorbed	(2,800 x 1.5 x 4)	<u>16,800</u>
Under absorption		<u>1,200</u>

MODEL ANSWER TO QUESTION 2 CONTINUED

(b) Trading Account for the first six months		£	£
Sales	(2,750 x 80)		220,000
Opening stock	(150 x 37.8)	5,670	
Cost of production	(2,800 x 37.8)	<u>105,840</u>	
		111,510	
Less Closing stock	(200 x 37.8)	<u>7,560</u>	
Cost of sales			<u>103,950</u>
Gross profit before adjustment			116,050
Less under absorbed overheads			<u>1,200</u>
Gross Profit			<u>114,850</u>

Or Cost of sales = 2,750 x £37.8 = £103,950

Workings

Unit cost of production = (unit variable + fixed cost per unit)
= £31.80 + (1.5hrs x £4.00 per labour hour)
= £37.80

QUESTION 3

Filla Fabrications manufactures and sells its single product at £20 per unit. The company, which currently has a monthly manufacturing capacity of 20,000 units, has orders for and plans to sell 18,000 units in the next month.

Total monthly costs, for production and sales of 18,000 units and 20,000 units are estimated at £248,000 and £272,000 respectively. The company only manufactures to sales orders received and keeps no stock.

REQUIRED

(a) Calculate for next month the estimated:

- (i) Variable cost per unit
- (ii) Break even point (in units)
- (iii) Margin of safety as a % of sales
- (iv) Net profit.

(10 marks)

A mail order company has approached Filla Fabrications with the following two order options.

- (i) 2,000 units at a price of £18 each
- or**
- (ii) 4,000 units at a price of £16 each.

This is in addition to the sales orders already received by Filla Fabrications and must be completed during next month's production. Filla Fabrications can increase its monthly manufacturing capacity to 22,000 units by hiring additional equipment at a cost of £2,500 per month. No changes in variable costs are expected.

REQUIRED

(b) Advise Filla Fabrications, using supporting calculations, whether either of the mail order options should be accepted.

(7 marks)

(c) State three assumptions in cost-volume-profit analysis.

(3 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 3

(a)

(i) Variable cost per unit

$$\begin{aligned} \text{Total costs} &= \text{Fixed costs} + \text{Variable costs} \\ \text{£248,000} &= \text{Fixed costs} + 18,000 \times \text{Variable cost per unit} \\ \underline{\text{£272,000}} &= \underline{\text{Fixed costs}} + \underline{20,000 \times \text{Variable cost per unit}} \\ \text{£24,000} &= 2,000 \times \text{Variable cost per unit} \end{aligned}$$

$$\text{Variable cost per unit} = \text{£24,000} / 2,000$$

$$\text{Variable cost per unit} = \mathbf{\text{£12}}$$

(ii) Break even point

$$\begin{aligned} \text{Break even point} &= \text{Fixed costs} / \text{Unit contribution} \\ &= \text{£32,000} / (\text{£20} - \text{£12}) \\ &= \mathbf{4,000 \text{ units}} \end{aligned}$$

Workings:

$$\text{£248,000} = \text{Fixed costs} + (18,000 \times \text{£12})$$

$$\text{Fixed costs} = 248,000 - 216,000$$

$$\text{Fixed costs} = \text{£32,000}$$

(iii) Margin of safety

$$\begin{aligned} \text{Margin of safety} &= \text{Budgeted sales} - \text{Break even point} \\ &= 18,000 - 4,000 \\ &= 14,000 \text{ units} \end{aligned}$$

$$\begin{aligned} \% \text{ of Sales} &= (14,000 / 18,000) \times 100\% \\ &= \mathbf{77.8\%} \end{aligned}$$

(iv) Net profit

$$\begin{aligned} \text{Net profit} &= \text{Total contribution} - \text{Fixed costs} \\ &= (18,000 \times \text{£8}) - \text{£32,000} \\ &= \mathbf{\text{£112,000}} \end{aligned}$$

MODEL ANSWER TO QUESTION 3 CONTINUED

(b)

Order option (i)

Additional contribution (net profit) = 2,000 x (£18 -£12)

Additional net profit = £12,000

Order option (ii)

Additional contribution = 4,000 x (£16 -£12)

= £16,000

Additional fixed costs = £2,500

Additional net profit = £16,000 - £2,500

= £13,500

Advice

Advise company to accept option (ii) as this option will generate £1,500 more profit than option (i)

(c)

Assumptions in cost-volume-profit analysis

Three of the following:

Selling price per unit is constant across the range of activity

Total fixed costs remain constant across the range of activity

Variable costs per unit is constant across the range of activity

Costs can be split between fixed and variable

QUESTION 4

The following balances were recorded in the cost ledger of a manufacturing company at the beginning of Month 2

	£000
Raw Material Control Account	70
Finished Goods Control Account	90
Work in Progress Control Account	60
Production Overhead Control Account (over absorbed)	5
Financial Ledger Control Account	215

During Month 2 the following transactions took place

	£000
Raw material purchases	110
Returns to suppliers	3
Materials issued from store	120
Total factory wages	100
Indirect production expenses	75
Work completed at cost	300
Production cost of sales	280
Sales	400

NOTES

- (i) 10% of raw material issues from stores are indirect
- (ii) 90% of factory wages are direct labour
- (iii) Factory overheads are absorbed at the rate of 110% of the direct labour wages.

REQUIRED

- (a) Record the above transactions in the cost ledger accounts for month 2. (14 marks)
- (b) Prepare a Costing Profit & Loss Account for month 2. (1 mark)
- (c) Close the accounts at the end of Month 2 and prepare a Trial Balance. (5 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 4

(a)

Raw Material Control Account

	£000		£000
Opening Balance	70	Financial Ledger Control	3
Financial Ledger Control	110	WIP Control	108
		Production Overhead Control	12
		Closing Balance	<u>57</u>
	<u>180</u>		<u>180</u>

Wages Control Account

	£000		£000
Financial Ledger Control	100	WIP Control	90
		Production Overhead Control	<u>10</u>
	<u>100</u>		<u>100</u>

Production Overhead Control Account

	£000		£000
Raw Material Control	12	Opening Balance	5
Wages Control	10	WIP Control	99
Financial Ledger Control	75		
Closing Balance	<u>7</u>		
	<u>104</u>		<u>104</u>

Work in Progress Control Account

	£000		£000
Opening Balance	60	Finished Goods Control	300
Raw Material Control	108	Closing Balance	57
Wages Control	90		
Production Overhead Control	<u>99</u>		
	<u>357</u>		<u>357</u>

Finished Goods Control Account

	£000		£000
Opening Balance	90	Production Cost of Sales	280
WIP Control	<u>300</u>	Closing Balance	<u>110</u>
	<u>390</u>		<u>390</u>

MODEL ANSWER TO QUESTION 4 CONTINUED

Production Cost of Sales Account

	£000		£000
Finished Goods Control	<u>280</u>	Profit/Loss	<u>280</u>
	<u>280</u>		<u>280</u>

Sales Account

	£000		£000
Profit/Loss	<u>400</u>	Financial Ledger Control	<u>400</u>
	<u>400</u>		<u>400</u>

Financial Ledger Control Account

	£000		£000
Raw Material Control	3	Opening Balance	215
Sales	400	Raw Material Control	110
Closing Balance	217	Wages Control	100
		Production Overhead Control	75
		Profit	<u>120</u>
	<u>620</u>		<u>620</u>

(b) **Costing Profit & Loss Account**

	£000		£000
Production Cost of Sales	280	Sales	400
Profit to Financial Ledger Control	<u>120</u>		
	<u>400</u>		<u>400</u>

(c) **Trial Balance**

	£000		£000
Raw Material Control	57		
Production Overhead Control			7
Work in Progress Control	57		
Finished Goods Control	110		
Financial Ledger Control	<u>217</u>		<u>217</u>
	<u>224</u>		<u>224</u>

QUESTION 5

A company, which manufactures and sells two products, Tee and Pee, has prepared the following budget detail for Year 7.

	Tee	Pee
Sales (units)	8,000	15,000
Raw material RM001 requirement per finished unit	4kg	2kg
Raw material RM002 requirement per finished unit	2kg	1kg
Raw material wastage rate (of material introduced)	20%	20%
Production reject rate	10%	5%
Stocks of finished goods at start of Year 7 (units)	400	800

Production is spread evenly over the year. All rejects occur after inspection at the end of production. It is company policy to purchase sufficient raw material at the beginning of each month to meet that month's production requirements.

Closing stocks of both products are planned to be 25% above those at the start of the year.

REQUIRED

(a) Calculate for Year 7 the:

- (i) Production budget for each product (in good units)
- (ii) Material requirement budget for each material
- (iii) Average stock held for each material during each month.

(14 marks)

(b) Name two other budgets that may be prepared relating to the production function.

(2 marks)

(c) Describe two benefits that a business would expect to derive from the budget setting process.

(4 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 5

(a) (i) Production budget (units)

	Tee	Pee
Sales	8,000	15,000
less opening stock	400	800
add closing stock	<u>500</u>	<u>1,000</u>
Production budget(good units)	<u>8,100</u>	<u>15,200</u>

(ii) Material requirement budget (kg)

		Raw material (kg)	
		RM001	RM002
Tee	[(8100 / 0.9) x (4 / 0.8)]	45,000	
Pee	[(15,200 / 0.95) x (2 / 0.8)]	40,000	
Tee	[(8,100 / 0.9) x (2 / 0.8)]		22,500
Pee	[(15,200 / 0.95) x (1 / 0.8)]		<u>20,000</u>
Material requirement budget		<u>85,000</u>	<u>42,500</u>

(iii) Average stock held (kg)

Raw material RM001	[(85,000 / 12) / 2]	3,542
Raw material RM002	[(42,500 / 12) / 2]	1,771

(b) Other budgets

Direct labour
 Direct expenses
 Production overheads
 Fixed asset

(c) Budget benefits

- (i) Provides an acceptable plan for the business
- (ii) Provides a basis of control. Progress can be measured against plan
- (iii) Provides motivation for managers and workforce. (Provided managers have participated in the initial budgeting process for their department.)
- (iv) Provides co-ordination and co-operation between departments.

QUESTION 6

A company, which produces a single product and uses a standard costing system, prepares a monthly reconciliation statement showing the variances between standard production costs and actual costs. The following is the statement for the month just ended.

	£	£
Standard cost of production		30,240
Variences:		
Material price	1280A	
Material usage	160A	
Labour rate	200A	
Labour efficiency	320F	
Fixed overhead expenditure	600A	
Fixed overhead volume	<u>480F</u>	<u>1,440A</u>
Actual cost of production		<u>31,680</u>

Actual production for the month 420 units

The standard direct cost for one unit was as follows:

Direct materials	8 kg @ £4 per kg.
Direct labour	2 hours @ £8 per hour

Fixed production overheads are absorbed at a rate of £12 per direct labour hour.

REQUIRED

(a) Calculate for the month just ended:

- (i) The actual quantity of direct materials used and the total actual direct material cost (assume usage quantity equals purchased quantity)
- (ii) The actual direct labour hours worked and the actual direct labour cost
- (iii) The actual fixed production overhead incurred
- (iv) The budgeted production units.

(14 marks)

(b) State possible reasons for the variances on:

- (i) Direct material
- (ii) Direct labour

(6 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 6

(a) (i)

Material usage variance = Std price (Std usage for actual prod - actual usage)

$$160A = 4 [(420 \times 8) - \text{actual usage}]$$

Actual quantity of direct material used = 3,400 kg

Material price variance = (Actual usage x std price) - actual cost

$$1280A = (3400 \times 4) - \text{actual cost}$$

Actual direct material cost = £14,880

(ii)

Labour efficiency variance = Std rate (std hours for actual production – actual hours)

$$320F = 8 [(2 \times 420) - \text{actual hours}]$$

Actual direct labour hours worked = 800 hours

Labour rate variance = (Actual hours x std rate) - actual cost

$$200A = (800 \times 8) - \text{actual cost}$$

Actual direct labour cost = £6,600

(iii)

Fixed overhead volume variance = (Std rate x std dir lab hours for actual production)
- budgeted overhead

$$480F = (12 \times 2 \times 420) - \text{budgeted overhead}$$

Budgeted overhead = £9,600

Fixed overhead expenditure variance = Actual overhead - Budgeted overhead

$$600A = \text{Actual overhead} - 9600$$

Actual overhead = £10,200

(iv)

Budgeted production (units) = Budgeted o/h / Fixed o/h absorption rate per unit
= 9600 / 12 x 2
= **400 units**

Or Using Fixed Overhead Volume Variance:

$$\frac{480F}{(12 \times 2)} = 20$$

$$\therefore 420 - 20 \\ = \mathbf{400 \text{ units}}$$

(b) (i)

Direct material variances.

The companies supplier could have increased the cost per kg (adverse price variance)

The material supplied could have been inferior quality or more scrap was generated than budgeted for and as a consequence more material than standard could have been used (adverse usage variance)

MODEL ANSWER TO QUESTION 6 CONTINUED

(ii)

Direct labour variances.

The company could have increased the employee's rate of pay (adverse rate variance) which in turn motivated the employees to complete the work in a time that was quicker than the standard time (favourable efficiency variance)