Cost Accounting
Level 3

International Qualifications from EDI

Model Answers
Series 3 2010 (3017)

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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.

QUESTION 1

Twin Products Ltd manufacture two products, each of which passes through two operations, cutting and forming.

At present the company uses a traditional absorption costing system, based on a machine hours rate, to establish the costs of production. The company is considering the introduction of an activity based costing system. Budgeted production and product data for the next period is as follows:

Product	**Aye**	**Bee**
Budgeted production	5,000 units	4,000 units
Direct material cost for period	£60,000	£40,000
Direct labour cost for period	£50,000	£80,000
Batch size	40 units	80 units
Cutting	6 operations per unit	4 operations per unit
Forming	2 operations per unit	3 operations per unit
Machine set up	1 per batch	1 per batch
Inspection	2 times per unit	2 times per unit
Machine hours	2 per unit	1.5 per unit

Both products are made from the same raw material, which is issued on a single sheet basis, against a material requisition. One sheet of material will make 10 units of Aye or 8 units of Bee.
No wastage of raw material is expected.

Budgeted costs for the period for each activity and their related cost drivers are:

	Cost (£)	**Cost Driver**
Cutting	69,000	Operations
Forming	33,000	Operations
Machine set up	7,000	Machine set ups
Inspection	45,000	Inspections
Stores	22,000	Material requisitions

REQUIRED

(a) Calculate the production overhead cost per unit for each product using:

(i) Traditional absorption costing
(ii) Activity based costing.

(14 marks)

(b) Calculate the budgeted production cost to manufacture one batch of each product using:

(i) Traditional absorption costing
(ii) Activity based costing.

(4 marks)

(c) Explain the meaning of the term ‘cost driver’.

(2 marks)

(Total 20 mark

MODEL ANSWER TO QUESTION 1

(a) (i) **Traditional Absorption Costing**

	Aye	**Bee**
Production	5,000 units	4,000 units
Machine hours	2 per unit	1.5 per unit
Total hours	10,000	6,000

Budgeted overhead costs	**£**
Cutting	69,000
Forming	33,000
Machine set up	7,000
Inspection	45,000
Stores	22,000
	176,000

Rate per hour £176,000 / (10,000 + 6,000) hours = £11 per hour

Cost per unit Aye = 2 x £11 = **£22.00**

Bee = 1.5 x £11 = **£16.50**

QUESTION 1 CONTINUED

(ii) **Activity based costing**

Overhead	**Aye**		**Bee**	
Cutting				
No of operations('000)		6 x 5,000	16	4 x 4,000
Total cost (£'000)	45	69 x 30/46	24	69 x 16/46
Cost per unit (£)	9	45,000/5,000	6	24,000/4,000
Forming				
No of operations('000)	10	2 x 5,000	12	3 x 4,000
Total cost (£'000)	15	33 x 10/22	18	33 x 12/22
Cost per unit (£)	3	15,000/5,000	4.5	18,000/4,000
Machine set up				
No of machine set-ups	125	5,000/40	50	4,000/80
Total cost (£'000)	5	7 x125/175	2	7 x 50/175
Cost per unit (£)	1	5,000/5,000	0.5	2,000/4,000
Inspection				
No of inspections('000)	10	2 x 5,000	8	2 x 4,000
Total cost (£'000)	25	45 x 10/18	20	45 x 8/18
Cost per unit (£)	5	25,000/5,000	5	20,000/4,000
Stores				
No of requisitions	500	5,000/10	500	4,000/8
Total cost (£'000)	11	22 x 500/1,000	11	22 x 500/1,000
Cost per unit (£)	2.2	11,000/5,000	2.75	11,000/4,000

	Aye	**Bee**
Cost per unit		
Cutting	9.	6.0
Forming	3.	4.5
Machine set-up	1.	0.5
Inspection	5.	5.0
Stores	2.20	2.75
	20.2	**18.75**

QUESTION 1 CONTINUED

(b) (i) **Production cost per batch (Traditional absorption costing)**

	Aye		**Bee**	
Material	480	60,000 x 40 / 5,000	800	40,000 x 80 / 4,000
Labour	400	50,000 x 40 / 5,000	1,600	80,000 x 80 / 4,000
Overheads	880	40 x 22	1,320	80 x 16.5
	£1,760		£3,720	

(ii) **Production cost per batch (Activity based costing)**

	Aye		**Bee**	
Material	480		800	
Labour	400		1,600	
Overheads	808	40 x 20.20	1,500	80 x 18.75
	£1,688		£3,900	

(c) **Cost Driver**:

A cost driver is any factor which causes a change in the cost of an activity.

QUESTION 2

Models Ltd manufactures a single product for the Toy Industry. The product is manufactured in the Production department and individually packed into a box in the Dispatch department. The company has provided the following budgeted information:

Direct material (per unit)	£20.00
Direct production labour (per unit at £10.00 per hour)	2 hours
Packing boxes	£2.00 each
Dispatch dept labour (per box packed) at £8.00 per hour	0.10 hours

Variable overheads are absorbed at £4.00 per labour hour in both departments.

Fixed overhead absorption (if absorption costing is applied:- based on planned production quantities)

Production dept	Absorbed at a rate of £2.50 per labour hour
Dispatch dept	Absorbed at a rate of £2.00 per unit packed

Unit selling price £65.00

Planned production and sales for the next period are as follows.

Production units manufactured	2,500
Production units packed	2,350
Sale of packed units	2,300

There is no stock of packed or unpacked units, direct material or packing boxes at the beginning of the period.

REQUIRED

Produce a single budgeted manufacturing and trading account, which includes closing stock figures, for the three month period ending September using:

(a) Absorption Costing.

(9 marks)

(b) Marginal Costing.

(6 marks)

(c) Explain and reconcile the difference between the profits calculated in part (a) and (b).

(5 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 2

Budgeted Manufacturing and Trading account for the period

(a) **Absorption Costing**

		(£)	(£)
Sales	(2,300 x £65)		149,500
Direct material	(2,500 x £20)	50,000	
Direct labour	(2,500 x 2 x £10)	50,000	
Material (packing boxes)	(2,350 x £2)	4,700	
Labour (dispatch dept)	(2,350 x 0.1 x £8)	1,880	
Variable overhead (production)	(2,500 x £4 x 2)	20,000	
Variable overhead (dispatch)	(2,350 x £4 x 0.1)	940	
Fixed overhead (production)	(2,500 x £2.50 x 2)	12,500	
Fixed overhead (dispatch)	(2,350 x £2)	4,700	
		144,720	
Less closing stock of WIP (unpacked products)		7,950	
Manufacturing cost of units completed		136,770	
Less closing stock (packed products)		2,910	
Manufacturing cost of sales			133,860
Gross profit			**15,640**

Workings:

Closing stock of unpacked products

Production units manufactured	2,500
Production units packed	2,350
Closing stock of unpacked boxes	150

Unit absorption cost unpacked product

Direct material	20
Direct labour	20
Variable o/h (production)	8
Fixed o/h (production)	5
Unit cost	£53

Value of closing stock 150 x £53 = £7,950

QUESTION 2 CONTINUED

Closing stock of packed products	
Production units packed	2,350
Sales	2,300
Closing stock of packed products	50
Unit absorption cost packed product	
Unit cost of unpacked product	53.0
Material (packing boxes)	2.0
Labour (dispatch dept)	0.8
Variable overhead (dispatch)	0.4
Fixed overhead (dispatch)	2.0
	58.2

Value of closing stock 50 x £58.20 = £2,910

(b) Marginal Costing

	£	£
Sales		149,500
Direct material	50,000	
Direct labour	50,000	
Material (packing boxes)	4,700	
Labour (dispatch dept)	1,880	
Variable overhead (production)	20,000	
Variable overhead (dispatch)	940	
Total variable costs	127,520	
Less closing stock of WIP (unpacked products)	7,200	
Variable manufacturing cost of units completed	120,320	
Less closing stock (packed products)	2,560	
Manufacturing cost of sales		117,760
Contribution		31,740
less		
Fixed overhead (production)	12,500	
Fixed overhead (dispatch)	4,700	
		17,200
Gross Profit		**14,540**

QUESTION 2 CONTINUED

Closing stock of unpacked products

Production units manufactured	2,500
Production units packed	2,350
Closing stock of unpacked boxes	150

Unit variable cost unpacked product	
Direct material	20
Direct labour	20
Variable overhead (production)	8
Unit cost	£48

Value of closing stock 150 x £48 = £7,200

Closing stock of packed products

Production units packed	2,350
Sales	2,300
Closing stock of packed products	50

Unit variable cost packed product	
Unit cost of unpacked product	48.0
Material (packing boxes)	2.0
Labour (dispatch dept)	0.8
Variable overhead (dispatch)	0.4
	£51.20

Value of closing stock 50 x £51.20 = £2,560

(c) Reconciliation of profits

Marginal Profit		14,540
Add fixed element to marginal closing stocks		
(i) unpacked products (150 x 5)	750	
(ii) packed products (50 x [5+2])	350	
		1,100
Absorption Profit		15,640

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

QUESTION 3

Solar Products Ltd manufactures and sells a single product. The following information is also available for the next 6 month period:

Sales:

The budgeted sales, in units, are as follows:

Month	July	Aug	Sept	Oct	Nov	Dec
Sales (units)	240	260	270	280	280	270

The standard selling price is £50 per unit. 40% are expected to be cash sales with the remaining customers allowed one month's credit. It is estimated that 5% of credit customers will be bad debts.

Production:

The company manufactures 60% of the budgeted sales during the month before the sale and the remaining 40% in the month of sale.

Costs:

(i) Direct material will be £20 per unit of the finished product. Material will be purchased in the month prior to their use in production and paid for in the following month.

(ii) Wages will be paid at the rate of £8 per unit of finished product, payable in the month of production. A bonus payment of £4 per unit will be paid on all additional monthly production in excess of 250 units, paid in the month following production.

(iii) Fixed production overheads of £18,000, including depreciation of £6,000, are budgeted for the year ahead. These are budgeted to be the same each month and, apart from depreciation are payable in the month they are incurred.

(iv) Variable selling expenses are expected to be £3 per unit payable in month they are incurred.

(v) Fixed administration overheads of £6,000 for the year ahead are budgeted to be same per month and payable in the month they are incurred.

Cash:

The company expects to have a bank overdraft of £3,500 at the start of August.

REQUIRED

Prepare the following budgets for each of the months August to October:

(a) Production (units)

(3 marks)

(b) Material purchases (£'s)

(2 marks)

(c) Labour cost

(3 marks)

(d) Cash.

(12 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 3

(a) **Production Budget**

	July	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
Sales (units)	240	260	270	280	280	270
Production (units)						
60% of following months sales	156	162	168	168	162	
40% of current months sales	96	104	108	112	112	
Production Budget	252	**266**	**276**	**280**	274	

(b) **Material Purchases Budget**

Material purchases (production units)	266	276	280	274	
Material purchases budget (£)	5,320	**5,520**	**5,600**	**5,480**	

(c) **Labour Cost Budget**

Production output	252	266	276	280	274
Basic cost	2,016	2,128	2,208	2,240	2,192
Bonus cost	8	64	104	120	96
Labour cost budget	2,024	**2,192**	**2,312**	**2,360**	2,288

(a) **Cash Budget**

	Aug	**Sept**	**Oct**
Receipts			
Sales	12,040	12,810	13,295
Payments			
Material	5,320	5,520	5,600
Labour	2,136	2,272	2,344
Fixed production overheads	1,000	1,000	1,000
Variable selling expenses	780	810	840
Fixed administration overheads	500	500	500
	9,736	10,102	10,284
Net cash flow	2,304	2,708	3,011
Opening bank balance	(3,500)	(1,196)	1,512
Closing bank balance	(1,196)	1,512	4,523

QUESTION 3 CONTINUED

Workings:

	July	Aug	Sept	Oct	Nov	Dec
Receipts - Sales						
Sale units	240	260	270	280	280	270
Sale revenue (£)	12,000	13,000	13,500	14,000	14,000	13,500
Cash income (40%)	4,800	5,200	5,400	5,600	5,600	5,400
Credit income (60%)		7,200	7,800	8,100	8,400	8,400
Bad Debts (5%)		-360	-390	-405	-420	-420
Receipts		**12,040**	**12,810**	**13,295**	13,380	13,380
Payments - Materials						
Material purchases budget (£)	5,320	5,520	5,600	5,480		
Material payment		**5,320**	**5,520**	**5,600**		
Payment - Labour						
Basic pay	2,016	2,128	2,208	2,240	2,192	
Bonus pay		8	64	104	120	
		2,136	**2,272**	**2,344**	2,312	

Payment – Fixed production overheads

Total overheads	£18,000
Less depreciation	£ 6,000
Payment per year	£12,000
Payment per month	**£ 1,000**

Payment – Variable selling expenses

Sales units	260	270	280
Expense (£)	**780**	**810**	**840**

QUESTION 4

Sole Products, which manufactures and distributes a single product, has budgeted to produce 5,000 units in month 5.

The standard production cost for one unit of the product is as follows:

	£
Direct materials (5kg @ £12.00 per kg)	60.00
Direct labour (2 hours @ £10.00 per hour)	20.00
Fixed production overheads (2 hours @ £8.00 per hour)	16.00
Standard Production cost per unit	96.00

The actual production for the month was 5,400 units and the actual costs incurred were as follows:

	£
Direct materials purchased (28,500 kg)	340,000
Direct labour (12,000 hours)	112,000
Fixed production overheads	85,000

Direct labour includes 200 hours idle time due to machine breakdown.

The opening stock of raw materials was 5,000kg, valued at standard purchase price, the raw material price variance being calculated at the time of purchase.

29,000 kg of material were issued to production in month 5.

There is no opening or closing stock of work in progress.

REQUIRED

(a) Calculate the following:

(i) Material price variance
(ii) Material usage variance
(iii) Labour rate variance
(iv) Idle time variance
(v) Labour efficiency variance
(vi) Fixed overhead volume variance
(vii) Fixed overhead expenditure variance.

(8 marks)

(b) Prepare the following accounts in the company's integrated accounting system:

(i) Raw material stock
(ii) Production overhead
(iii) Work in progress.

When compiling the above, show clearly all the relevant variances within all three accounts.

(12 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 4

(a)

Material Price Variance		**£**
Standard (28,500 x £12) less Actual (£340,000)	=	**2,000F**

Material Usage Variance		
Standard (29,000 x £12) less standard usage for actual output (5,400 x 5kg x £12)	=	**24,000A**

Labour Rate Variance		
Standard (12,000 x £10) less Actual (£112,000)	=	**8,000F**

Idle Time Variance		
Idle time hours (200) x Standard rate (£10)	=	**2,000A**

Labour Efficiency Variance		
Standard (5,400 x 2 hours x £10) less standard hours for actual output [(12,000 - 200) x £10]	=	**10,000A**

Fixed Overhead Volume Variance		
Absorbed (5,400 x £8 x 2 hrs) less Budgeted (5,000 x £8 x 2 hrs)	=	**6,400F**

Fixed Overhead Expenditure Variance		
Budgeted (5,000 x £8 x 2 hrs) less Actual (£85,000)	=	**5,000A**

Syllabus Topic 6: Accounting Systems(6.3)

(b)

Raw Material Stock Account (£)

Opening stock	60,000	Work in Progress	348,000
Purchases(creditors)	340,000	Closing stock	54,000
Material price variance	2,000		
	402,000		402,000

Workings:

Opening stock - 5,000kg x £12 per kg = £60,000

Work in progress - 29,000kg x £12 per kg = £348,000

Closing stock - (5,000 + 28,500 - 29,000) x £12 = £54,000

QUESTION 4 CONTINUED

Production Overhead Account (£)

Creditors	85,000	Work in progress	80,000
		Fixed o/h exp variance	5,000
	85,000		85,000

Workings:

Work in progress - 5,000 units x £16 = £80,000

Work in Progress Account (£)

Raw material	348,000	Labour efficiency variance	10,000
Direct labour	120,000	Idle time variance	2,000
Production o/h	80,000	Direct mat usage variance	24,000
Fixed o/h volume variance	6,400	Transfer to finished goods	518,400
	554,400		554,400

Workings:

Direct labour - 12,000 hours x £10 per hour = £120,000

Transfer to finished goods - 5,400 units x £96 = £518,400

QUESTION 5

Makit Ltd manufactures and sells its single product at £16 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 16,000 units and 18,000 units are estimated at £136,000 and £148,000 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) Contribution/Sales ratio
(iii) Break even point (in revenue)
(iv) Margin of safety as a % of sales
(v) Net profit.

(11 marks)

A mail order company has approached Makit Ltd with the following two order options:

(i) 2,000 units at a price of £15 each
or
(ii) 4,000 units at a price of £14 each.

This is in addition to the sales orders already received by Makit Ltd and must be completed during next month's production. Makit Ltd can increase its monthly manufacturing capacity to 22,000 units by hiring additional equipment at a cost of £10,000 per month. No changes in variable costs are expected.

REQUIRED

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

(6 marks)

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

(3 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 5

(a)

(i) Variable cost per unit

Total costs	=	Fixed +	Variable
£136,000	=	Fixed +	16,000 x variable cost per unit
£148,000	=	Fixed +	18,000 x variable cost per unit
£12,000	=		2,000 x variable cost per unit

$$\text{Variable cost per unit} = \frac{£12,000}{2,000}$$

Variable cost per unit = **£6**

(ii) Contribution/sales ratio

Contribution = £16 - £6 = £10

$$\text{Contribution/sales ratio} = \frac{£10}{£16}$$

Contribution/sales ratio = **0.625 or 62.5%**

(iii) Break even point

$$= \frac{\text{Fixed costs}}{\text{Contribution/sales ratio}}$$

$$= \frac{£40,000}{0.625}$$

= **£64,000**

Workings:

Fixed costs = £136,000 - (16,000 x £6)

Fixed costs = £40,000

(iv) Margin of safety

Margin of safety = Budgeted sales - break even revenue

Margin of safety = 18,000 units x £16 per unit - £64,000

Margin of safety = £288,000 - £64,000 = £224,000

$$\text{\% of sales} = \frac{£224,000}{£288,000} \times 100\%$$

% of sales = **77.77%**

(v) Net profit

Net profit = Total contribution - Fixed costs

Net profit = (18,000 x £10) - £40,000

Net profit = **£140,000**

QUESTION 5 CONTINUED

(b)

Option (i)

Additional contribution (net profit)	=	2,000 x (15 - 6)
	=	**£18,000**

Option (ii)

Additional contribution	=	4,000 x (14 - 6)
	=	£32,000
Additional fixed costs	=	£10,000
Additional net profit	=	£32,000 -£10,000
	=	**£22,000**

Advice

Advise Makit to accept option (ii) as this will generate £4,000 more profit.

(c) Assumptions in cost-volume-profit analysis

Any 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 cost per unit is constant across the range of activity

Cost can be split between fixed and variable

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