

Cost Accounting Level 3



International
Qualifications from EDI

Model Answers Series 2 2012 (3017)

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Series 2 2012

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.

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QUESTION 1

A company purchases a number of different components from an outside supplier. The following information relates to three of these components.

Component Aye

Daily usage varies between 25 and 35kg
Lead time for delivery varies between 19 and 25 days.
Order quantity is 1,000kgs

Component Bee

Balance in stores is currently 1,250 kg
Stock on order 2,000 kg
Allocated stock is 550 kg

Component Cee

Order quantity 400 kgs
Purchase price £2.00 per kg
Monthly usage 600 kgs
Safety (buffer) stock 400 kgs
Ordering costs £200 per order
Stock holding costs are 20% of the average stockholding per annum.

The supplier has offered a discount off the purchase price if the order quantity is increased. Details are as follows:

Order Quantity	Discount
400 kgs	-
600 kgs	5%
800 kgs	7.5%

REQUIRED

- (a) For component Aye calculate:
- (i) the re-order level (1 mark)
 - (ii) the minimum stock control level (2 marks)
 - (iii) the maximum stock control level. (3 marks)
- (b) For component Bee calculate the free stock currently available. (2 marks)
- (c) For component Cee determine the order quantity that would minimise the total annual costs. (8 marks)
- (d) Briefly explain the meaning of:
- (i) re-order level (1 mark)
 - (ii) allocated stock (1 mark)
 - (iii) free stock. (2 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 1

Syllabus Topic 1: Materials and stock control (1.3, 1.5, 1.6 and 1.7)

(a) **Component Aye**

- (i) Re-order level
= maximum usage x maximum lead time
= 35 X 25 = **875kgs** 1

- (ii) Minimum stock control level
= Re-order level - (average use x average lead time)
= 875 - (30 x 22) = **215kgs** 2

- (iii) Maximum stock control level
= Re-order level - (minimum use x minimum lead time) + order quantity
= 875 - (25 x 19) + 1,000 = **1,400kgs** 3

(6 marks)

(b) **Component Bee**

Free stock = Stock balance in stores + Stock on order - Allocated stock
Free stock = 1, 250kg + 2,000kg - 550kg = **2,700kgs**

(2 marks)

(c) **Component Cee**

Quantity to minimise annual costs

Order quantity (kgs)	400	600	800	
Usage per year (kgs)	7,200	7,200	7,200	
Number of orders per year	18	12	9	1
Average stock	600	700	800	2
Material cost per kg (£)	2.00	1.90	1.85	1
Ordering costs (£)	3,600	2,400	1,800	1
Stock holding costs (£)	240	266	296	1
Total material cost	<u>14,400</u>	<u>13,680</u>	<u>13,320</u>	1
	<u>18,240</u>	<u>16,346</u>	<u>15,416</u>	1

Order 800kg, at a discounted price of £1.85 per kg, nine times per year.

(8 marks)

(d)

- (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)

(Total 20 marks)

QUESTION 2

Sole Products Ltd, which produces a single component for the motor industry, has budgeted to make 6,400 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 £3.00 per kg
Direct material B	4 kg at £1.50 per kg
Direct labour	1.50 hours at £10 per hour
Variable overheads	Absorbed at £3.00 per unit

Fixed factory overheads, absorbed at a predetermined rate based on direct labour hours, are expected to be £48,000 for the year and are expected to occur evenly throughout the year.

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

Opening stock of components	200 units
Sale of components	2,900 units
Closing stock of components	300 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 (6 marks)
 - (ii) the over/under absorption of fixed production overheads. (3 marks)
- (b) Prepare a trading account, for the first six months of the year in absorption costing format, clearly showing the opening and closing stocks and any over/under absorption of overheads. (7 marks)
- (c) Calculate the trading profit if the company had used the marginal costing format. (4 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 2
Syllabus Topic 2: Costing methods and systems (2.9 and 2.10)

(a)

(i) Cost of production

Unit cost of production		
	£	
Material A	6	
Material B	6	
Direct labour	15	
Variable overheads	<u>3</u>	
Total variable cost	<u>30</u>	1

Production in the first six months (units)		
Sales	2,900	
add closing stock	300	
less opening stock	(<u>200</u>)	
Production	<u>3,000</u>	2

Actual cost of production for the first six months

Variable cost (3,000 x 30)	90,000	1
Fixed costs (48,000/2)	<u>24,000</u>	1
Total cost	<u>114,000</u>	1

(6 marks)

(ii) Over/under absorption of fixed overheads

Actual fixed overheads	24,000	1
Overheads absorbed (3,000 x 5 x 1.5)	<u>22,500</u>	1
Under absorbed	<u>1,500</u>	1

(3 marks)

Workings

Labour time for one unit	1.50 hours
Budgeted output	6,400 units
Total budgeted labour hours	9,600 hours
Budgeted fixed overheads	£48,000
Fixed production overhead absorption rate	£5 per labour hour

(b) Trading account for the first six months (Absorption costing)

		£	£	
Sales	(2,900 x 80)		232,000	
Opening stock	(200 x 37.5)	7,500		1
Cost of production	(3,000 x 37.5)	<u>112,500</u>		1
		120,000		
Less closing stock	(300 x 37.5)	<u>11,250</u>		1
Cost of sales			<u>108,750</u>	

MODEL ANSWER TO QUESTION 2 CONTINUED

Gross profit before adjustment	123,250	
Less under absorbed overheads	<u>1,500</u>	1
Gross profit	<u>121,750</u>	1

Workings

Unit cost of production = $\text{£}30 + (1.5\text{hrs} \times \text{£}5 \text{ per labour hour})$ $= \text{£}30 + \text{£}7.50 = \text{£}37.50$	2	(7 marks)
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(c) Gross profit calculation using Marginal costing

Absorption costing profit	121,750	
Add fixed element of opening stock (200 x £7.50)	1,500	1
Less fixed element of closing stock (300 x £7.50)	<u>(2,250)</u>	1
Marginal costing profit	<u>121,000</u>	1

Workings

Fixed cost element per unit = $= \text{£}37.50 - \text{£}30.00 = \text{£}7.50$	1	(4 marks)
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Alternative answer:

$$2,900 \times 50 (80 - 30) =$$
$$145,000 - 24,000 (\text{fixed cost}) = \underline{\underline{\text{£}121,000}}$$

(Total 20 marks)

QUESTION 3

A company plans to sell 50,000 units of its single product, in the next period, at a selling price of £16 per unit. Using the existing production process, fixed overheads and net profit for the next period are expected to be £100,000 and £300,000 respectively.

The company is considering a change to its production process. The change would increase the fixed overheads by £60,000 in the next period and reduce the variable costs to £7 per unit. The selling price will remain constant regardless of production process.

Production capacity in both the existing and changed processes would be 80,000 units in the period.

REQUIRED

- (a) For the existing production process, calculate for the next period the expected:
- (i) break-even point in units (4 marks)
 - (ii) margin of safety as a % of sales (1 mark)
 - (iii) contribution sales ratio. (1 mark)
- (b) Advise management, using supporting calculations, whether to change the production process if the sales are 50,000 units in the period. (5 marks)
- (c) Advise management, using supporting calculations, of the sales level (units) at which the changed and existing process profits would be the same. (6 marks)
- (d) Identify three limitations of break-even analysis. (3 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 3

Syllabus Topic 3: Cost-volume-profit analysis (3.1, 3.2, 3.3, 3.4 and 3.7)

(a)

(i) Planned total contribution	=	Fixed overheads + Profits	
	=	£100,000 + £300,000	
	=	£400,000	1
Unit contribution	=	£400,000 / 50,000	
	=	£8 per unit	1
Break-even point	=	Fixed overheads / unit contribution	
	=	£100,000 / £8	
	=	12,500 units	2
(ii) Margin of safety	=	[(Unit sales - break-even sales) / Unit sales]	
	=	[(50,000 - 12,500) / 50,000]	
	=	75.0%	1
(iii) Contribution sales ratio	=	(Unit contribution / Unit sales price) x 100%	
	=	(£8 / £16) x 100%	
	=	50.0%	1

(6 marks)

(b) Supporting calculations for management advice

Existing method

Planned profit at 50,000 units output = £300,000

Changed method (proposed)

Unit contribution = Selling price - Unit variable cost

= £16 - £7

= £9 unit

Contribution at 50,000 units output = 50,000 x £9

= £450,000

2

Profit at 50,000 units output = Total contribution - fixed overheads

= £450,000 - (£100,000 + £60,000)

= £290,000

2

Advice:

Continue with existing method at 50,000 units of sales

1

(5 marks)

(c) Supporting calculations for management advice

Sales level where profits are equal for both methods

Profit = Total contribution - Fixed costs

Existing method = (£8 x output) - £100,000

1

Changed method = (£9 x output) - (£100,000 + £60,000)

1

Therefore:

(£8 x output) - £100,000 = (£9 x output) - £160,000

Output level = (£160,000 - £100,000) / (£9 - £8)

2

= 60,000 units

1

MODEL ANSWER TO QUESTION 3 CONTINUED

Advice:

The existing and the changed production process would record the same profit at a sales level of 60,000 units.

1
(6 marks)

(d) Limitations of break-even analysis

Any three of the following:

- (i) It assumes unit selling price remains constant regardless of how many products are sold
- (ii) It assumes total fixed costs remain constant
- (iii) It assumes variable costs per unit remain constant
- (iv) It assumes costs can be split into their fixed and variable elements
- (v) It assumes stock levels remain the same. Items are not produced for stock but sold immediately.

(3 marks)

(Total 20 marks)

QUESTION 4

A company produces a single product and uses a standard absorption costing system. The production department budgets for the next period include the following:

Production output	1,000 units
Direct labour per unit	4 hours @ £12 per hour
Fixed overheads	£24,000

Fixed production overheads are absorbed on the basis of standard direct labour hours.

The actual results for the period were as follows:

Production output	1,125 units
Direct labour	4,800 hours, at a total cost of £56,000 (includes 400 hours idle time caused by machine breakdown)
Fixed overheads	£22,400

REQUIRED

- (a) Calculate for the period the following production ratios:
- (i) efficiency (2 marks)
 - (ii) capacity. (2 marks)
- (b) Calculate for the period the following variances:
- (i) direct labour rate (1½ marks)
 - (ii) idle time (1½ marks)
 - (iii) direct labour efficiency. (3 marks)
- (c) Calculate for the period the following overhead variances:
- (i) expenditure (1 mark)
 - (ii) volume (2 marks)
 - (iv) volume capacity (2 marks)
 - (v) volume efficiency. (2 marks)
- (d) Explain the meaning of the term 'standard hour'. (3 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 4**Syllabus Topic 5: Standard costing and variances (5.8, 5.9, 5.11, 5.12 & 5.18)****(a) (i) Production Efficiency ratio (%)**

$$\frac{\text{Standard direct labour hours of actual production}}{\text{Actual direct labour hours worked}} \times 100\%$$

$$= \frac{1,125 \times 4}{4,800} \times 100\% = \mathbf{93.75\%} \quad \mathbf{2}$$

(ii) Production capacity ratio (%)

$$\frac{\text{Actual direct labour hours worked}}{\text{Budgeted direct labour hours}} \times 100\%$$

$$= \frac{4,800}{1,000 \times 4} \times 100\% = \mathbf{120\%} \quad \mathbf{2}$$

(4 marks)

(b) (i) Direct Labour Rate Variance

Actual hours	4,800	
Standard rate per hour (£)	<u>12</u>	
	£57,600	
Actual cost of labour	£56,000	
Labour rate variance	£1,600F	1½

(ii) Idle Time Variance

Idle time hours	400	
Standard rate per hour	£12	
Idle time variance	£4,800A	1½

(iii) Direct Labour Efficiency Variance

Production	1,125	
Standard hours per unit	4	
	4,500	
Actual hours	4,800	
Idle time hours	400	
Actual productive hours	4,400	
Standard hours - Actual productive hours	100	
Standard rate per hour	£12	
Labour efficiency variance	£1,200F	3

(6 marks)

MODEL ANSWER TO QUESTION 4 CONTINUED

(c) **Production Overhead Variance**

(i) **Expenditure**

Budgeted		£24,000	
Actual		<u>£22,400</u>	
		£1,600F	1

(ii) **Volume**

Standard hours for budgeted output	(1,000 x 4)	4,000	
Standard hours for actual output	(1,125 x 4)	<u>4,500</u>	
		500	
Fixed overhead absorption rate	(24,000/4,000)	£6	
Volume variance		£3,000F	2

(iii) **Volume Capacity**

Standard hours for budgeted output		4,000	
Actual hours for actual output		<u>4,800</u>	
		800	
Fixed overhead absorption rate		£6	
Volume capacity variance		£4,800F	2

(iv) **Volume Efficiency**

Standard hours for actual output		4,500	
Actual hours for actual output		<u>4,800</u>	
		300	
Fixed overhead absorption rate		£6	
Volume efficiency variance		£1,800A	2

(7 marks)

(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.

(3 marks)

(Total 20 marks)

QUESTION 5

Sinclair Ltd manufactures and sells a single product. The following information is available:

Sales:

The budgeted sales volume for year 2 for the product includes the following:

Month	January	February	March	April	May
Sales units	260	270	280	280	270

The standard selling price is £40 per unit. The sales volume for December of year 1 is expected to be 240 units at the standard price.

20% of sales are expected to be cash sales with the remaining customers allowed one month's credit. It is expected that 5% of credit sales will be bad debts.

Production:

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

Costs:

- (i) Direct material will be purchased at £10 per unit of finished product, in the month prior to their use in production, and paid for in the month following purchase.
- (ii) Direct labour will be paid at the rate of £6 per unit of finished product, payable in the month of production. A bonus payment of £3 per unit will be paid on all monthly production in excess of 250 units, paid in the month following production.
- (iii) Fixed production overheads of £20,000 per year, including depreciation of £6,800, are budgeted to be the same each month and are paid in the month they are incurred.
- (iv) Variable production overheads are expected to be £4 per unit payable in the month incurred.
- (v) Variable selling expenses are expected to be £5 per unit payable in the month of sales.

Cash:

The company expects to have a bank overdraft balance of £1,966 at the start of year 2.

REQUIRED

- (a) Prepare the following budgets for each of the months January, February and March:
 - (i) material purchases (units and £'s) (4 marks)
 - (ii) cash. (12 marks)
- (b) Briefly explain any **two** benefits that are expected to accrue from the use of budgets. (4 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 5**Syllabus Topic 4: Budgetary planning and control (4.2 & 4.4)**

(a) (i) Material Purchases Budget

	Jan	Feb	March	April	May	
Sales (year 2)	260	270	280	280	270	
Production						
(40% current months sales)	104	108	112	112		
(60% following months sale)	<u>162</u>	<u>168</u>	<u>168</u>	<u>162</u>		
Production output (units)	<u>266</u>	<u>276</u>	<u>280</u>	<u>274</u>		2
Material purchases budget (units)	276	280	274			1
Material purchases budget (£'s)	2,760	2,800	2,740			1
						(4 marks)

(ii) Cash Budget

	Jan	Feb	March	
Receipts				
Sales	9,376	10,064	10,448	3
Payments				
Material	2,660	2,760	2,800	1
Labour	1,602	1,704	1,758	3
Fixed production overhead	1,100	1,100	1,100	1
Variable production overhead	1,064	1,104	1,120	1
Variable selling expenses	<u>1,300</u>	<u>1,350</u>	<u>1,400</u>	1
	<u>7,726</u>	<u>8,018</u>	<u>8,178</u>	
Net cash flow	1,650	2,046	2,270	1
opening bank balance	(<u>1,966</u>)	(<u>316</u>)	<u>1,730</u>	
closing bank balance	(<u>316</u>)	<u>1,730</u>	<u>4,000</u>	1
				(12 marks)

(b) Benefits

- (i) Can provide an acceptable plan for all departments of the business to work to
 - (ii) Can provide a basis for control. Progress can be measured against the plan
 - (iii) Can show where resources need to be obtained or developed
 - (iv) Can motivate staff as targets set should be achievable.
- (any two of above 2 marks each)

(4 marks)

MODEL ANSWER TO QUESTION 5 CONTINUED

Workings:

Receipts:	Sales (£)	Cash (20%)	Credit (80%)	B/debts (5%)	Credit (76%)	Total
Dec year 1	9,600					
Jan (year 2)	10,400	2,080	7,680	(384)	7,296	9,376
Feb (year 2)	10,800	2,160	8,320	(416)	7,904	10,064
March (year 2)	11,200	2,240	8,640	(432)	8,208	10,448
		1			1	1

Payments – Materials:

	Purchases	Payments
Dec year 1	2,660 (266 x £10)	(£'s)
Jan (year 2)	2,760	2,660
Feb (year 2)	2,800	2,760
March (year 2)	2,740	2,800

Payments Labour:

	Output	Basic	Bonus	Total
Dec year 1	252			
Jan (year 2)	266	1,596	6	1,602
Feb (year 2)	276	1,656	48	1,704
March (year 2)	280	1,680	78	1,758
		1	1	1

Payments - Fixed production overheads (£'s)

Total overhead	20,000
Less depreciation	<u>6,800</u>
Annual payment	<u>13,200</u>
Monthly payment	1,100

Payments - Variable production overheads @ £4 per unit (£'s)

	Output	Overhead
Jan (year 2)	266	1,064
Feb (year 2)	276	1,104
March (year 2)	280	1,120

Payments - Variable selling expenses @ £5 per unit (£'s)

	Sales (units)	Expense (£'s)
Jan (year 2)	260	1,300
Feb (year 2)	270	1,350
March (year 2)	280	1,400

(Total 20 marks)

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