

Cost Accounting Level 3



Model Answers

Series 2 2006 (Code 3016)

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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.

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QUESTION 1

Makit Ltd manufactures a product in a single process. All materials are introduced at the start of the process and any losses that occur have no scrap value. The company uses the first-in first-out method of valuation.

Production overheads are absorbed at the rate of £12 per direct labour hour.

Direct labour is paid at the rate of £8 per hour.

The following information is available for the last period:

Opening stock of work-in-progress 1,000kg £8,300
(The opening stock of work in progress was 60% complete with respect to labour and overheads)

Materials introduced 16,000kg £70,000

Direct labour £27,600

Transfer to finished goods 14,000kg

Closing stock of work-in-progress 1,200kg
(The closing stock of work-in-progress was 50% complete with respect to labour and overheads)

A normal loss of 2,000kg was expected.

All losses are detected at the end of the process.

REQUIRED

- (a) For the last period calculate:
- (i) the equivalent units and the cost per unit for each element of cost (4 marks)
 - (ii) the value of the transfer to finished goods and of the closing stock of work-in-progress (6 marks)
- (b) Prepare the process account showing both quantities and values (5 marks)
- (c) Define normal loss and abnormal loss/gain and contrast briefly their cost accounting treatment (5 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 1

(a)

(i)

	Table of workings for equivalent units		
	Material	Labour	Overheads
Transfer to finished goods	14,000	14,000	14,000
Abnormal gain	(200)	(200)	(200)
Closing stock	1,200	600	600
Opening stock	(1,000)	(600)	(600)
Equivalent units	14,000	13,800	13,800
Costs	£70,000	£27,600	£41,400
Costs per unit	£5.00	£2.00	£3.00

Workings

Abnormal gain = $1,000 + 16,000 - 1,200 - 14,000 - 2,000 = (200)$

Overhead cost = $£27,600 / 8 \times 12 = £41,400$

(ii) Cost of opening work-in-progress completed

$£8,300 + (1,000 - 600) \times (2.00 + 3.00)$

= £10,300

Finished goods

= Cost of opening stock completed + Cost of output wholly processed

= $£10,300 + [(14,000 - 1,000) \times £10.00]$

= £140,300

Cost of closing work-in-progress

= $(1,200 \times £5.00) + 600 \times (£2.00 + £3.00)$

= £9,000

(b)

	Process Account			
	Units	Cost	Units	Costs
Open WIP	1,000	8,300	Fin Goods	14,000
Material	16,000	70,000	Normal loss	2,000
Labour		27,600	Closing WIP	1,200
Overheads		41,400 (1)		
Abnormal Gain	200	2,000 (1)		
	<u>17,200</u>	<u>149,300</u>	<u>17,200</u>	<u>£149,300</u>

Workings

Abnormal gain

= $200 \times £10.00$

= £2000

(c)

Normal loss: A loss that is expected in production under normal operating conditions

Abnormal loss: loss that exceeds the normal loss

Abnormal gain: A gain over the expected finished goods output

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

QUESTION 2

Ace Ltd maintains stock record cards that clearly show physical stock, allocated stock, amount on order and free stock.

The stock record card for one item of stock, Part Number. A752, recorded the following information and balances at the beginning of month 2:

Re-order level	500 units of free stock
Re-order quantity	400 units
Physical stock	250 units
Allocated stock	110 units
Amount on order	400 units

The following transactions relating to Part Number A752 took place during month 2:

Day

2nd	60 units allocated to job No. 21
3rd	110 units issued to job No. 16 (previously allocated)
4th	20 units issued to job No.122 (not previously allocated)
8th	Materials ordered at end of month 1 received
10th	100 units issued to job 23 (not previously allocated)
14th	80 units allocated to job 24
15th	50 units returned to supplier as faulty. Supplier agreed to replace
20th	60 units issued to job 21 (previously allocated)
26th	150 units issued to job 25 (not previously allocated)
28th	Materials ordered in month 2 received plus replacement materials returned on 15 th of month
30 th	50 units issued to job 26 (not previously allocated)

REQUIRED

- (a) Write up the detailed stock record card for Part Number A752 for month 2 (14 marks)
- (b) Briefly explain the meaning of:
- (i) Re-order level (2 marks)
 - (ii) Allocated stock (2 marks)
 - (iii) Free stock (2 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 2

(a) **STOCK RECORD CARD**

Stock Part Number A752
 Re-order level 500 units – Free Stock
 Re-order quantity 400 units

Date	Receipts	Issues	Stock in hand	Allocated stock	Stock on order	Free
Month 2						
1			250	110	400	540
2			250	170	400	480
2			250	170	800	880
3		110	140	60	800	880
4		20	120	60	800	860
8	400		520	60	400	860
10		100	420	60	400	760
14			420	140	400	680
15		50	370	140	450	680
20		60	310	80	450	680
26		150	160	80	450	530
28	450		610	80	0	530
30		50	560	80	0	480
30			560	80	400	880

(b)

(i) Reorder level:

The stock level at which the business reorders more items

(ii) Allocated stock:

Stock reserved for or allocated to customer

(iii) Free stock:

Stock, on hand or on order, that is available for reservation or allocation, (or immediately issue from stock, without prior reservation, provided there is physical stock in stores)

QUESTION 3

ACE Ltd, which produces a single component for the motor industry, has just completed its first year of trading. The summary profit and loss account for the year, prepared on the absorption costing basis, is set out below:

	£	£
Sales		224,000
Production cost of sales:		
Cost of production:		
Direct material	37,440	
Direct labour	47,970	
Variable overhead	25,740	
Fixed overhead	<u>38,610</u>	
	149,760	
Less closing stock	<u>6,400</u>	
Gross profit		<u>143,360</u> 80,640
Selling and administration costs:		
Variable	4,480	
Fixed	<u>33,600</u>	
Net profit		<u>38,080</u> <u>42,560</u>

11,700 units were manufactured in the first year and 11,200 were sold

Budgeted data for the second year of trading is as follows:

Sales units	12,100
Production units	12,500
Selling price	£22.00 per unit
Direct material	£ 3.40 per unit
Direct labour (0.50 hours @ £9 per hour)	£ 4.50 per unit
Variable production overheads absorbed @	£ 4.50 per direct labour hour.
Fixed production overheads	£40,000
Variable selling and administration costs	£ 5,000
Fixed selling and administration costs	£36,000

REQUIRED

(a) Prepare a budgeted profit and loss account for Year 2 using the:

- (i) Absorption costing basis
- (ii) Marginal costing basis

(15 marks)

(b) Explain the difference between the profits calculated in part (a) Your explanation should be supported with calculations.

(5 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 3

(a) (i) Budgeted Profit and Loss Account, Year 2 – Absorption costing basis

	£	£
Sales		266,200
Production cost of sales		
Cost of production		
Direct material	42,500	
Direct labour	56,250	
Variable overheads	28,125	
Fixed overheads	<u>40,000</u>	
	166,875	
Add opening stock	6,400	
Less closing stock	<u>12,015</u>	
		<u>161,260</u>
Gross profit		104,940
Selling and admin costs:		
Variable	5,000	
Fixed	<u>36,000</u>	
		<u>41,000</u>
Net profit		<u>63,940</u>

Workings:

<u>Closing Stock (units)</u>	
Opening stock (11,700 – 11,200)	500
Add production	12,500
Less sales	<u>12,100</u>
Closing stock (units)	<u>900</u>
<u>Closing stock (valuation)</u>	
= £166,875 / 12,500 x 900	£12,015

(ii) Budgeted Profit and Loss Account Year 2 – Marginal costing basis

	£	£
Sales		£266,200
Variable cost of sales		
Direct material	42,500	
Direct labour	56,250	
Variable overheads	<u>28,125</u>	
	126,875	
Add opening stock	[1] 4,750	
Less closing stock	[2] 9,135	
Production cost of sales	122,490	
Selling and admin costs	<u>5,000</u>	
		<u>127,490</u>
Contribution		138,710
Fixed costs		
Production overheads	40,000	
Selling and admin costs	<u>36,000</u>	
		<u>76,000</u>
Net profit		<u>62,710</u>

Workings

Opening Stock = £111,150 x 500 / 11,700 = £4,750

Closing Stock = £126,875 x 900 / 12,500 = £9,135

MODEL ANSWER FOR QUESTION 3 CONTINUED

(b)

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

Reconciliation of profits	£
Absorption profit	63,940
Less fixed element in closing stock	[1] 2,880
Add fixed element in opening stock	[2] 1,650
Marginal profit	<u>62,710</u>

Workings

$$\begin{aligned} \text{[1] Fixed element (closing stock)} &= \text{£}40,000 \times 900 / 12,500 \\ &= \text{£}2,880 \end{aligned}$$

$$\begin{aligned} \text{[2] Fixed element (opening stock)} &= \text{£}38,610 \times 500 / 11,700 \\ &= \text{£}1,650 \end{aligned}$$

QUESTION 4

A company manufactures and distributes a single product. The variable costs per unit are as follows:

Direct materials	£40.00
Direct labour	£12.00
Variable overheads	£ 8.00

The product sells for £80.00 per unit and the company expects total sales revenue in this current year of £1,200,000. Fixed overheads are forecasted at £120,000 for the year.

REQUIRED

- (a) Calculate for the current year the:
- (i) break-even point in units (2 marks)
 - (ii) contribution/sales ratio (2 marks)
 - (iii) margin of safety as a percentage of sales (2 marks)
 - (iv) expected profit (2 marks)

The following changes in cost are expected in the following year:

- Raw material prices to increase by 5%
- Direct wage rate to increase by 3%
- Variable overheads to rise by 8% per unit of product
- Fixed overheads to increase by £16,000

REQUIRED

- (b) Calculate for the following year:
- (i) A new selling price that maintains the current year's contribution/sales ratio (4 marks)
 - (ii) The sales volume required to maintain the current year's margin of safety if the selling price remains at £80 (4 marks)
 - (iii) The sales volume required to maintain the current year's profit if the selling price remains at £80. (4 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 4

(a)

	£/unit	£/unit
Selling price		80.00
Direct material	40.00	
Direct labour	12.00	
Variable o/heads	<u>8.00</u>	
Contribution		<u>60.00</u> <u>20.00</u>

(i) Break-even = Fixed overheads / unit contribution
= 120,000 / 20

Marginal Costing = **6,000 units**

(ii) Contribution/sales ratio = 20 / 80
3: Marginal Costing = **25%**

(iii) Margin of safety $[(\text{Sales volume} - \text{break even}) / \text{Sales volume}] \times 100\%$
= $[(15,000 - 6,000) / 15,000] \times 100\%$
= **60%**

(iv) Expected profit = Total contribution – fixed overheads
= 25% x 1,200,000 – 120,000
= **£180,000**

(b) Variable costs for following year:

	£/Unit
Direct material	42.00
Direct labour	12.36
Variable o/heads	<u>8.64</u>
	<u>63.00</u>

(i) Selling price
Contribution/sales ratio = $\frac{\text{Selling price} - \text{unit variable cost}}{\text{Selling price}}$
0.25 = $\frac{\text{SP} - 63.00}{\text{SP}}$
SP (0.25 – 1) = - 63
SP (1 – 0.25) = 63
SP = 63 / 0.75
Selling price = **£84.00**

MODEL ANSWER TO QUESTION 4 CONTINUED

(ii) Sales volume (margin of safety)

$$\begin{aligned} \text{Break even} &= \text{Fixed overheads / unit contribution} \\ &= \frac{(120,000 + 16,000)}{80 - 63} \\ &= \mathbf{8,000 \text{ units}} \\ \text{Margin of safety} &= \frac{\text{Sales volume} - \text{break even}}{\text{Sales volume}} \\ 0.60 &= \frac{\text{SV} - 8000}{\text{SV}} \\ \text{SV} (1 - 0.60) &= 8,000 \\ \text{Sales volume} &= \mathbf{20,000 \text{ units}} \end{aligned}$$

(iii) Sales volume (profit)

$$\begin{aligned} \text{Total contribution required} &= \text{Current years profit} + \text{increased fixed overheads} \\ &= 180,000 + 136,000 \\ &= \mathbf{\pounds 316,000} \\ \text{Sales volume required} &= \frac{316,000}{80 - 63} \\ &= \mathbf{18,588 \text{ units}} \end{aligned}$$

QUESTION 5

A manufacturing company has prepared the following monthly overhead budget for its cost centre A12.

Units produced	9,000	10,000	11,000	12,000
	£	£	£	£
Indirect materials	22,500	24,500	26,950	29,400
Indirect labour	13,500	15,000	17,325	18,900
Power	2,360	2,560	2,760	2,960
Maintenance	13,200	14,500	15,800	17,100
Depreciation	6,440	6,440	6,440	6,440
Supervision	18,000	27,000	27,000	36,000

The variable indirect material cost per unit reduces by 2% for production of 10,000 units and over.

The variable indirect labour cost per unit increases by 5% for production of 11,000 units and over.

Actual production in Month 1 was 10,400 units and actual overhead expenditure was:

	£
Indirect materials	26,480
Indirect labour	15,100
Power	2,540
Maintenance	15,620
Depreciation	6,240
Supervision	27,800

REQUIRED

- (a) Briefly explain the main difference between flexible and fixed budgets (4 marks)
- (b) Prepare a statement for Month 1 for cost centre A12, showing for each item of cost, the following:
- (i) Flexed budget allowance
 - (ii) Actual cost
 - (iii) Expenditure variance

(16 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 5

(a) A fixed budget is normally set prior to the start of an accounting period and used for planning purposes. It is based on one level of activity

A flexible budget, used for control purposes, changes in response to changes in activity by recognising different cost behaviour patterns

(b) Cost Centre A12 Budget Statement Month 1 Production 10,400 units

Overhead Costs	Flexed Budget	Actual	Variance
	£	£	£
Indirect material	25,480	26,480	1000A
Indirect labour	15,600	15,100	500F
Power	2,640	2,540	100F
Maintenance	15,020	15,620	600A
Depreciation	6,440	6,240	200F
Supervision	<u>27,000</u>	<u>27,800</u>	<u>800A</u>
	<u>92,180</u>	<u>93,780</u>	<u>1,600A</u>

Workings:

Indirect material:

At the actual production output of 10,400 units (i.e. over 10,000 units) the 2% unit cost reduction will have been received

The budgeted costs for production outputs of 10,000, 11,000 and 12,000 units included this reduction

Budgeted output	Unit cost
10,000 units	$24,500 / 10,000 = £2.45$
11,000 units	$26,950 / 11,000 = £2.45$
12,000 units	$29,400 / 12,000 = £2.45$

Unit costs the same hence indirect material is a variable cost between these outputs
Therefore flexed budget at 10,400 units output = $10,400 \times £2.45 = £25,480$

Indirect labour

At actual production outputs of 10,400 units (i.e. under 11,000 units) no increase in unit cost is incurred

The budgeted costs for production outputs of 9,000 and 10,000 units do not include the increase

Budgeted output	Unit cost
9,000 units	$13,500 / 9,000 = £1.50$
10,000 units	$15,000 / 10,000 = £1.50$

Unit costs the same hence indirect labour is a variable cost between these outputs
Therefore flexed budget at 10,400 units output = $10,400 \times £1.50 = £15,600$

MODEL ANSWER TO QUESTION 5 CONTINUED

Workings:

Power

Total overhead	=	Fixed o/h + (unit variable o/h x units)
(Using output units of 10,000 and 11,000)		
2,760	=	Fixed o/h + (uv o/h x 11,000)
<u>2,560</u>	=	<u>Fixed o/h + (uv o/h x 10,000)</u>
200	=	uv o/h x 1,000
Variable o/h	=	£0.20 per unit
Fixed o/h	=	2,560 – 0.20 x 10,000
	=	£560
(Using output units of 11,000 and 12,000)		
2,960	=	Fixed o/h + (uv o/h x 12,000)
<u>2,760</u>	=	<u>Fixed o/h + (uv o/h x 11,000)</u>
200	=	uv o/h x 1,000
Variable o/h	=	£0.20 per unit
Fixed o/h	=	2,560 – 0.20 x 10,000
	=	£560

Fixed and variable unit costs the same for each range of production outputs
Therefore flexed budget at 10,400 units = 560 + (10,400 x 0.20) = **£2,640**

Maintenance

Total overhead	=	Fixed o/h + (unit variable o/h x units)
(Using output units of 10,000 and 11,000)		
15,800	=	Fixed o/h + (uv o/h x 11,000)
<u>14,500</u>	=	<u>Fixed o/h + (uv o/h x 10,000)</u>
1,300	=	uv o/h x 1,000
Variable o/h	=	£1.30 per unit
Fixed o/h	=	14,500 – 1.30 x 10,000
	=	£1,500
(Using output units of 11,000 and 12,000)		
17,100	=	Fixed o/h + (uv o/h x 12,000)
<u>15,800</u>	=	<u>Fixed o/h + (uv o/h x 11,000)</u>
1,300	=	uv o/h x 1,000
Variable o/h	=	£1.30 per unit
Fixed o/h	=	14,500 – 1.30 x 10,000
	=	£1,500

Fixed and variable unit costs the same for each range of production outputs
Therefore flexed budget at 10,400 units = 1,500 + (10,400 x 1.30) = **£15,020**

QUESTION 6

The standard production costs per unit of a company's single product in a period were:

Direct materials		£
RM01	4kg at £3 per kg	12.00
RM02	2metres at £4 per metre	8.00
Direct labour		
Grade 1	2 hours at £8 per hour	16.00
Grade 2	1 hours at £10 per hour	10.00
Fixed overheads		<u>24.00</u>
		<u>70.00</u>

Budgeted production for this period was 1,200 units

Actual production and costs relating to this period were as follows:

Production 1,250 units

Direct material

Purchases

RM01 5,300 kg purchased at a total cost of £16,200
RM02 2,400metres purchased at a total cost of £9,400

Issues to production

RM01 5,100kg
RM02 2,200metres

Direct labour

Grade 1 2400 hours worked at a total cost of £18,600
Grade 2 1300 hours worked at a total cost of £12,000

Fixed production overheads incurred £28,000

At the beginning of the period the following quantities of raw material were in stock:

RM01 200 kg
RM02 120 metres

There were no stocks of work in progress at the beginning or end of the period.

The company's policy is to calculate material price variance at the time of purchase.

REQUIRED

For this period

- (a) Calculate the following variances:
- (i) Direct material price and usage (for each type of raw material) (6 marks)
 - (ii) Direct labour rate and efficiency (for each grade of labour) (6 marks)
 - (iii) Fixed overhead expenditure and volume (2 marks)
- (b) Prepare the Raw Materials Stock Account for each type of direct material (include in your accounts the price variance). (6 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 6

(a) (i)

	RM01	RM02
Material Price Variance		
Standard Price	£3 per kg	£4 per metre
Purchases Quantity	<u>5,300 kg</u>	<u>2,400 metres</u>
	£15,900	£9,600
Actual cost of purchases	<u>£16,200</u>	<u>£9,400</u>
Material price variances	£300A	£200F

Material Usage Variance

Production	1,250 units	1,250 units
Standard use per unit	4 kg	2 metres
Standard use	5,000 kg	2,500 metres
Actual usage	<u>5,100 kg</u>	<u>2,200 metres</u>
	100 kg	300 metres
Standard price	<u>£3 per kg</u>	<u>£4 per metre</u>
Material usage variance	£300A	£1,200F

(ii)

	Grade 1	Grade 2
Labour Rate Variance		
Actual hours	2,400	1,300
Standard rate per hour	<u>£8</u>	<u>£10</u>
	£19,200	£13,000
Actual cost of labour	<u>£18,600</u>	<u>£12,000</u>
Labour rate variance	£600F	£1,000F

Labour Efficiency Variance

Production	1,250 units	1,250 units
Standard hours per unit	2	1
	2,500 hours	1,250 hours
Actual hours	<u>2,400 hours</u>	<u>1,300 hours</u>
	100 hours	50 hours
Standard rate per hour	<u>£8</u>	<u>£10</u>
Labour efficiency variance	£800F	£500A

(iii)

Fixed Overhead Variance

Expenditure variance	$(24 \times 1,200) - 28,000$	=	800F
Volume variance	$(1,250 - 1,200) \times 24$	=	1,200F

MODEL ANSWER TO QUESTION 6 CONTINUED

(b)

Raw Material Stock Account (RM01)

Bal b/d	600	Price variance	300
Purchases	16,200	Work in progress	15,300
	<u>16,800</u>	Bal c/d	<u>1,200</u>
			<u>16,800</u>

Raw Material Stock Account (RM02)

Bal b/d	480	Work in progress	8,800
Purchases	9,400	Bal c/d	1,280
Price variance	<u>200</u>		
	<u>10,080</u>		<u>10,080</u>