

Cost Accounting Level 3



International
Qualifications from EDI

Model Answers Series 4 2012 (3017)

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Series 4 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

Dual Ltd manufactures two products (Product Tee and Product Pee). Each product contains three different raw materials which are mixed together in the manufacturing process.

The company have provided the following budgeted information for year 12.

	Product Tee	Product Pee
Product Sales (units)	530	1,120
Standard raw material requirement per unit		
Raw material: 01 (at £8 per kg)	3kg	4kg
02 (at £10 per kg)	2kg	1kg
03 (at £6 per kg)	2kg	2kg
Production rejection rate	10%	5%

Production is spread evenly over the year. All production rejects occur after inspection, at the end of production, and are valued and disposed of, for income of £20 per unit.

It is company policy to purchase sufficient raw materials at the beginning of each month, to meet their month's production requirements.

Stocks of both finished products, by the end of the year, are planned to be 25% above those at the start of the year.

	Tee	Pee
Stock of finished products at start of year (units)	40	80

It is also company policy to maintain the following raw material minimum stock control levels.

Raw material: 01	100 kg
02	40 kg
03	50 kg

Required

- (a) Calculate for year 12:
- (i) The production budget for each product (units). (3 marks)
 - (ii) The income generated by the disposal of rejects. (2 marks)
 - (iii) The material requirement budget for each raw material (kg). (6 marks)
 - (iv) The average stock investment for each raw material held during each month. (6 marks)
- (b) Explain the term principal budget factor. (3 marks)

(Total 20 marks)

Model Answer to Question 1

Syllabus Topic 4: Budgetary planning and control (4.3, 4.4)

Syllabus Topic 1: Materials and stock control (1.3)

(a) (i) **Production Budget**

	Tee	Pee	
Sales	530	1,120	
Less opening stock	40	80	(1)
Add closing stock	<u>50</u>	<u>100</u>	(1)
Required production for sales	<u>540</u>	<u>1,140</u>	
Actual production required	<u>600</u>	<u>1200</u>	(1)

(3 marks)

Workings:

Actual production required:

Tee $540/0.9 = 600$

Pee $1,140/0.95 = 1,200$

(ii) **Income Generated**

Tee rejected units	60	(½ of)
Pee rejected units	<u>60</u>	(½ of)
Total rejected units	<u>120</u>	(½)
Income generated (120 x £20)	<u>£2,400</u>	(½)

(2 marks)

(iii) **Material Requirement Budget**

	Raw Materials		
	01	02	03
Tee (600 x 3)	1,800		
Pee (1,200 x 4)	4,800		
Tee (600 x 2)		1,200	
Pee (1,200 x 1)		1,200	
Tee (600 x 2)			1,200
Pee (1,200 x 2)			<u>2,400</u>
Material Requirement	<u>6,600</u>	<u>2,400</u>	<u>3,600</u>
	(2 of)	(2 of)	(2 of)

(6 marks)

Model Answer to Question 1 continued

(iv) Stock Investment

Monthly purchase order quantity

Raw material:	01	(6,600/12)	550 kg	
	02	(2,400/12)	200 kg	
	03	(3,600/12)	300 kg	(1½)

Average stock

[Order quantity/2 + min stock (stock of raw materials at start of month)]

Raw material:	01	(550/2 + 100)	375kg	
	02	(200/2 + 40)	140kg	
	03	(300/2 + 50)	200kg	(3)

Average stock investment

(Average stock x cost per material kg)

Raw material:	01	(375 x £8)	£3,000	
	02	(140 x £10)	£1,400	
	03	(200 x £6)	£1,200	(1½)

(6 marks)

- (b) The principal budget factor is the factor which restricts the activities of the organisation during the budget period **(1)**. This budget must be prepared first **(1)** and all other budgets will be derived from it **(1)**.

(3 marks)

(Total 20 marks)

Question 2

Truemix Ltd uses a process system in department A, which jointly produces its two main products (Products Delta and Felta) and a by-product Gamma.

All three products require further processing before sale.

Information regarding the joint products for the month of November is as follows:

- (1) 10,000 tonnes of raw material, at a cost of £50 per tonne, were introduced into the process.
- (2) There is a normal loss allowance of 2% of input.
Process losses are expected to be disposed of at a rate of £6 per tonne.
- (3) Conversion costs were:

Variable	£8 per tonne of raw material introduced
Fixed	£120,000 per month
- (4) Output for the month was:

Delta	6,000 tonnes
Felta	3,000 tonnes
Gamma	800 tonnes
- (5) Further processing costs per tonne were:

Delta	£10
Felta	£12
Gamma	£2
- (6) The final selling prices per tonne of the products were:

Delta	£100
Felta	£112
Gamma	£35
- (7) 400 tonnes of Gamma were used without any further processing in another department as a substitute for a material, which otherwise would have cost £40 per tonne to purchase.
- (8) All production is sold during the month.

Required

- (a) Prepare a process account, for the month of November, using the Net Sales method of joint cost apportionment. (11 marks)
- (b) Prepare a profit statement showing the profit, in total and for each of the main products. (5 marks)
- (c) State the meaning of, and explain the costing treatment of the following:
 - (i) joint products
 - (ii) by-products. (4 marks)

(Total 20 marks)

Model Answer to Question 2

Syllabus Topic 2: Costing methods and systems (2.3 and 2.6)

(a)

Process account					
	Tonnes	£		Tonnes	£
Material	10,000	500,000	Delta	6,000	432,000 (2)
Conversion (fixed)		120,000	Felta	3,000	240,000 (2)
Conversion (variable)		80,000	Gamma used	400	16,000 (1)
Process disposals		1,200 (1)	Gamma sold	400	13,200 (2)
			Normal loss	200	(2)
	<u>10,000</u>	<u>701,200 (1)</u>		<u>10,000</u>	<u>701,200</u>

(11 marks)

Workings

Variable conversion cost	(10,000 x £8) = £80,000
Process disposals	(200 x £6) = £1,200
By-product Gamma (£)	
Used in other dept (400 x 40)	= 16,000
Sold [400 x (35 - 2)]	= <u>13,200</u>
	<u>29,200</u>

Main product net sales (£)	
Delta 6,000 x (100 - 10)	= 540,000
Felta 3,000 x (112 - 12)	= <u>300,000</u>
	<u>840,000</u>

Joint costs apportioned on the basis of net sales:

Delta (701,200 - 29,200) x (540,000 / 840,000)	= 432,000
Felta (701,200 - (29,200 + 432,000)) x (300,000 / 840,000)	= 240,000

(b) **Profit statement for the month of November (£)**

Product	Delta	Felta	Total
Sales	600,000	336,000	(1)
Less			
Process costs	432,000	240,000	(1)
Further process costs	<u>60,000</u>	<u>36,000</u>	(1)
	(492,000)	(276,000)	
Profit	<u>108,000</u>	<u>60,000</u>	168,000 (2)

(5 marks)

(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 (1). Total process costs are apportioned arbitrarily to each of the main products by different methods (physical numbers, sales revenue and net sales) (1). Process profit does not depend on the method of cost apportionment (1).

Max 2 marks

(ii) **By-product**

A product that has commercial value but is not the product, or products (1), for which the production process is intended. By-product revenue is used to reduce the process costs for apportioning to main products (1).

Max 2 marks

(4 marks)

(Total 20 marks)

Question 3

Sole products manufacture and distribute a single product.

The company, which intends to maintain its unit product sales price for the current year, has budgeted to sell 15,000 units.

Sales revenue of £1,200,000 is expected.

Fixed overheads are forecasted at £120,000 for the year.

The variable costs per unit are as follows:

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

Required

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

(8 marks)

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

Raw material price to increase by 5% per unit
Direct wage rate to increase by 3% per unit
Variable overheads to increase by 8% per unit
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
 - (ii) The sales volume required to maintain the current year's margin of safety if the current selling price per unit remains unchanged
 - (iii) The sales volume required to maintain the current year's profit if the current selling price per unit remains the same.

(12 marks)

(Total 20 marks)

Model Answer to Question 3

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

(a) (i) **Contribution/Sales ratio**

	£/unit	£/unit	
Selling price		80.00	
Direct material	40.00		
Direct labour	12.00		
Variable overheads	<u>8.00</u>		
		(60.00)	
Contribution		<u>20.00</u>	
Contribution/sales ratio	= (20/80) / 100	= 25%	(2)

Workings: Selling price = £1,200,000 / 15,000 units = £80

(ii) **Break-even point**

$$\begin{aligned} \text{Revenue (£)} &= \text{Fixed overheads} / \text{contribution/sales ratio} \\ &= 120,000 / 0.25 = \mathbf{£480,000 (1\ of)} \\ \text{Units} &= 480,000 / 80 = \mathbf{6,000\ units (1\ of)} \end{aligned}$$

(iii) **Margin of safety**

$$\begin{aligned} &= [(\text{Sales volume} - \text{break-even}) / \text{sales volume}] \times 100\% \\ &= [(15,000 - 6,000) / 15,000] \\ &= \mathbf{60\% (2\ of)} \end{aligned}$$

(iv) **Budgeted profit**

$$\begin{aligned} &= \text{Total contribution} - \text{fixed costs} \\ &= (25\% \times 1,200,000) - 120,000 \\ &= \mathbf{£180,000 (2\ of)} \end{aligned}$$

(8 marks)

(b) **Variable costs for following year**

$$\begin{aligned} \text{Direct material } £40 \times 1.05 &= 42.00 \\ \text{Direct labour } £12 \times 1.03 &= 12.36 \\ \text{Variable overheads } £8 \times 1.08 &= \underline{8.64} \\ &= \underline{63.00 (1)} \end{aligned}$$

(i) **New selling price**

$$\text{Contribution/sales ratio} = \frac{\text{Selling price} - \text{unit variable cost}}{\text{Selling price}} \quad (1)$$

$$0.25 = \frac{\text{selling price} - 63.00}{\text{Selling price}}$$

$$\begin{aligned} \text{Therefore } (0.25 \times \text{SP}) - \text{SP} &= (-63) \\ \text{Therefore } \text{SP} \times (1 - 0.25) &= 63 \\ \text{Selling price} &= 63/0.75 \\ \text{Selling price} &= \mathbf{£84 (2\ of)} \end{aligned}$$

(4 marks)

Model Answer to Question 3 continued

(ii) Sales volume (margin of safety)

$$\begin{aligned}\text{Break-even point for year} &= (120,000 + 16,000) / (80 - 63) \\ &= 8,000 \text{ units (2 of)}\end{aligned}$$

$$\text{Margin of safety (60\%)} = \frac{\text{sales volume} - 8,000}{\text{sales volume}}$$

$$\text{Therefore (SV x 0.60) - SV} = (-8,000)$$

$$\text{Therefore SV x (1 - 0.60)} = 8,000$$

$$\text{Sales volume} = \mathbf{20,000 \text{ units (2 of)}}$$

(4 marks)

(iii) Sales volume (profit)

$$\text{Total contribution required} = \text{Current profit} + \text{increased fixed overheads}$$

$$= 180,000 + 136,000$$

$$= \text{£}316,000 \quad \mathbf{(2 \text{ of})}$$

$$\text{Sales volume required} = 316,000 / (80 - 63)$$

$$= \mathbf{18,588 \text{ units (2 of)}}$$

(4 marks)

(Total 20 marks)

Question 4

Makit Ltd maintains a cost ledger which is kept separate to the financial ledger.
At the beginning of Month 10, the following balances remained in the cost ledger.

	£000	£000
Raw Material Control Account	60	
Finished Goods Control Account	80	
Work in Progress Control Account	50	
Production Overhead Control Account (over absorbed)		5
Financial Ledger Control Account	<u> </u>	<u>185</u>
	<u>190</u>	<u>190</u>

During Month 10 the following transactions took place

	£000
Raw material purchases	110
Total factory wages	100
Indirect production expenses	75
Sales	400

At the end of Month 10 the following stocks, valued at cost, were recorded.

Raw materials	£50,000
Work in progress	£47,000
Finished goods	£100,000

Notes

- (1) 10% of raw material issues from stores are indirect
- (2) 90% of factory wages are direct labour
- (3) 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 (16 marks)
- (b) Distinguish between integrated and non-integrated accounting systems. (4 marks)

(Total 20 marks)

Model Answer to Question 4
Syllabus Topic6: Accounting systems (6.1 and 6.4)

(a) **Raw Material Control Account**

	£000		£000	
Opening Balance	60	Work in progress control	108	(1)
Financial Ledger control	110	Prod Overhead control	12	(1)
	—	Closing Balance	<u>50</u>	
	<u>170</u>		<u>170</u>	

Workings:

Material issued = (60 + 110) - 50 = 120
 10% indirect = 12 90% direct = 108

Wages Control Account

	£000		£000	
Financial Ledger control	100	Work in progress control	90	(½)
	—	Prod Overhead Control	<u>10</u>	(½)
	<u>100</u>		<u>100</u>	

Production Overhead Control Account

	£000		£000	
Raw material control	12	Opening Balance	5	
Wages control	10	Work in progress control	99	(½ of)
Financial ledger control	75		—	
Closing Balance	<u>7</u>		<u>104</u>	
	<u>104</u>			

Workings: Work in progress = 110% x (90% x 100) = 99

Work in Progress Control Account

	£000		£000	
Opening Balance	50	Finished Goods control	300	(1 of)
Raw material control	108	Closing Balance	47	
Wages control	90		—	
Prod Overhead Control	<u>99</u>		<u>347</u>	
	<u>347</u>			

Workings: Work completed at cost (347 - 47) = 300

Finished Goods Control Account

	£000		£000	
Opening Balance	80	Production cost of sales	280	(1 of)
Work in progress control	<u>300</u>	Closing Balance	<u>100</u>	
	<u>380</u>		<u>380</u>	

Workings: Production cost of sales (380 - 100) = 280

Model Answer to Question 4 continued

Production Cost of Sales Account

	£000			£000	
Finished Goods control	<u>280</u>	(½ of)	Profit and Loss	<u>280</u>	(½ of)
	<u>280</u>			<u>280</u>	

Sales Account

	£000			£000	
Profit and Loss	<u>400</u>	(½ of)	Financial Ledger Account	<u>400</u>	(½)
	<u>400</u>			<u>400</u>	

Profit and Loss Account

	£000			£000	
Production costs of sales	280				
Financial Ledger Control	<u>120</u>	(1 of)	Sales	<u>400</u>	
	<u>400</u>			<u>400</u>	

Financial Ledger Control Account

	£000			£000	
Sales	400	(½)	Opening Balance	185	
Closing Balance	190	(½)	Raw material control	110	(½ of)
			Wages control	100	(½ of)
			Prod Overhead Control	75	(½ of)
			Profit	<u>120</u>	
	<u>590</u>			<u>590</u>	

(16 marks)

(b)

Integrated accounts are a set of accounting records which provides both financial and cost accounts **(1)** using common data **(1)**. **(2)**

Non-integrated accounts are a system in which the cost accounts are distinct from the financial accounts, the two sets of accounts being kept in agreement **(1)** by use of control accounts or reconciled by other means **(1)**. **(2)**

(4 marks)

(Total 20 marks)

Question 5

Travel Far Ltd is a transport company operating four, new, identical large goods vehicles. The business, located in rented premises, employs drivers contracted from an agency on an hourly basis.

The company uses a traditional absorption costing system for its operational overheads, based on costs per vehicle/KM, and its office overheads based on costs per contracted job.

The company has produced the following budgeted data and information regarding the business for Year 11.

Vehicle Data

Purchase price per vehicle	£80,000
Trade in value per vehicle (after 5 years)	£12,000
Each vehicle is budgeted to complete 48,000 km per year.	
120 contracted jobs, involving all 4 vehicles, have been budgeted for.	

Operational Overheads.

Road fund licence (per vehicle per year)	£800
Insurance (per vehicle per year)	£1,600
Servicing (every 16,000 km per vehicle)	£400 per service
Tyres (10 per vehicle renewed every 48,000km)	£250 per tyre
Depreciation is charged at 20% annually, in equal instalments, on the purchase price of each vehicle less the cost of tyres and less its trade in value.	

Office Overheads

Rent	£16,000 per year
Insurance	£12,000 per year
Administration	£20,000 per year

Budgeted Operating Data

Agency driver wages	£12 per hour
Driver time per vehicle per year	1,920 hours
Fuel consumption (at 1 litre per 4km)	12,000 litres per vehicle.
Fuel cost (at £1.40 per litre)	£16,800 per vehicle

Required

- (a) Calculate, for Year 11, the predetermined overhead absorption rate for the:
- (i) Operational Overheads (per KM per vehicle)
 - (ii) Office Overheads (per contracted job).

(5 marks)

The company monitors its costs on a monthly basis and the following budgeted and actual results were recorded for Month 10, Year 11.

Budgeted

Contracted jobs	10
Agency driver time	640 hours
Total vehicle distance	16,000 km

Actual

Jobs completed	10
Driver time	600 hours
Agency driver wage	£7,500
Total vehicle distance covered	16,400 km
Fuel consumed	4,200 litres
Fuel cost	£5,460

Question 5 continued

Required

- (b) Produce a budgeted cost statement for:
- (i) Year 11
 - (ii) Month 10, Year 11.

(5 marks)

Calculate for Month 10, Year 11:

- (c) (i) the material (fuel) price variance
(ii) the material (fuel) usage variance.

(3 marks)

- (d) (i) the labour (driver) rate variance
(ii) the labour (driver) efficiency variance.

(3 marks)

- (e) based on your calculations in (c) and (d) above, suggest a possible reason why each of the variances above has occurred.

(4 marks)

(Total 20 marks)

Model Answer to Question 5

Syllabus Topic 4: Budgetary Planning and Control (4.10)

Syllabus Topic 5: Standard costing and variances (5.4, 5.8 and 5.17)

(a) Operational Overheads (for all four vehicles)

	£	
Road fund licence (£800 x 4)	3,200	
Insurance (£1,600 x 4)	6,400	
Servicing	4,800	(1)
Tyres	10,000	
Depreciation	<u>52,400</u>	(1)
	<u>76,800</u>	
(i) Predetermined absorption rate	= £76,800 / (4 x 48,000)	
	= £0.40 per KM per vehicle	(1)

Workings: Servicing (£400 x (48,000/16,000) x 4 = 4,800
 Depreciation [£80,000 - (12,000 + 2,500)] x 4 x 0.20 = £52,400

(ii) Office Overheads

	£	
Rent	16,000	
Insurance	12,000	
Administration	<u>20,000</u>	
	<u>48,000</u>	(1)
Predetermined absorption rate	= £48,000 / 120	(1)
	= £400 per contract	

(5 marks)

(b) (i) Budgeted Cost Statement for Year 11

	£	
Agency driver wages (1,920 x £12 x 4)	92,160	(½)
Fuel (12,000 x £1.40 x 4)	67,200	(½)
Operational overheads	76,800	(½of)
Office overheads	<u>48,000</u>	(½of)
	<u>284,160</u>	

(ii) Budgeted Cost Statement for Month 10, Year 11

	£	
Agency driver wages (640 x £12)	7,680	(½)
Fuel (16,000/4 x £1.40)	5,600	(½)
		(1)
Operational overheads (16,000 x £0.4)	6,400	of)
		(1)
Office overheads (£400 x 10)	<u>4,000</u>	of)
	<u>23,680</u>	

(5 marks)

Model Answer to Question 5 continued

(c)

(i) Material (fuel) price variance

Standard price @ actual usage	(£1.4 x 4,200)	£5,880
Actual price		£5,460
		<u>420F</u>

(ii) Material (fuel) usage variance

Standard usage @ standard price	[(16,400/4) x £1.4]	£5,740
Actual usage @ standard price	(4,200 x £1.4)	£5,880
		<u>140A</u>

(3 marks)

(d)

(i) Labour (driver) rate variance

Actual hours @ standard rate	(600 x £12)	£7,200
Actual cost		£7,500
		<u>300A</u>

(ii) Labour (driver) efficiency

Budgeted hours @ standard rate	(640 x £12)	£7,680
Actual hours @ standard rate	(600 x £12)	£7,200
		<u>480F</u>

(3 marks)

(e) Reasons for variance

- Material price variance - Price of fuel per litre lower than budget (1 of)
- Material usage - Fuel consumption higher than budget (1 of)
- Labour rate - Unexpected increase in agency wages (1 of)
- Labour efficiency - Drivers completed the contracts in a quicker time than budget. (1 of)

(4 marks)

(Total 20 marks)

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

www.ediplc.com



International
Qualifications from EDI