

Management Accounting Level 3



International
Qualifications from EDI

Model Answers Series 2 2009 (3023)

Management Accounting Level 3

Series 2 2009

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.

© Education Development International plc 2009

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

- (a) Describe **activity based costing** (ABC) in contrast to traditional methods of attributing production overhead costs to products. Outline two advantages of using ABC. (8 marks)
- (b) Define, giving two examples, the term **service cost centre**. State why service cost centre costs in a factory need to be re-apportioned over production cost centres. (6 marks)
- (c) State **three** reasons why organisations decentralise. (6 marks)
- (Total 20 marks)**

MODEL ANSWER TO QUESTION 1

- (a) **Activity based costing (ABC)** is an approach to the attribution of overhead costs to products which involves the tracing of resource consumption directly to products. This is in contrast to the more traditional approach which initially allocates and apports overheads to the cost centres where they are incurred. Overheads are then absorbed into the cost of products in such a way (usually using volume-related absorption basis) that there is frequently only a tenuous link between expenses incurred and the charging of those expenses to different products.

Using ABC, overhead costs are first allocated to the activities that cause them to be incurred. The key driver of each activity's costs (the key factor that causes the cost of the activity to change) needs to be identified. Any activities with a common cost driver can be pooled and then overheads are attributed to products, which create demand for the activities, based upon their relative consumption of each activity. In this way ABC recognises the range and complexity of the different products and the resulting overheads incurred.

Two advantages of ABC, in contrast to traditional methods, are:

- (i) greater understanding of cost behaviour and as a result better control of costs;
 - (ii) more accurate costing and as a result better decisions.
- (b) A cost centre is defined by CIMA as "a location, function, activity or item of equipment in respect of which costs may be ascertained". A service cost centre has no output to the external market but provides support internally to other cost centres.

Examples of a service cost centre include stores, maintenance, canteen and personnel services.

Costs must be re-apportioned to production cost centres so that they become incorporated into product costs. If absorption costing is used, failure to do so will especially result in the under-absorption of overheads and under-valuation of finished goods stock.

- (c) Better decisions can be made as managers can react more quickly to local conditions.

The problem of handling all decisions is removed from top management, who can then apply more of their time to long-term planning.

By being given the responsibility for the performance of their own areas, managers are likely to be more motivated to achieve their own objectives.

MODEL ANSWER TO QUESTION 1 CONTINUED

Such greater motivation is likely to result in greater awareness of the environment in which the company is, or is likely to be, operating. This is likely to result in more prompt and effective actions being taken.

Local management positions can provide a good training ground for the company's future senior management.

QUESTION 2

A company manufactures and sells a single product with the following selling price and variable costs:

	£ per unit	
Selling price	55.00	
Variable costs:		
Direct material	20.86	
Direct labour	8.94	(£7.45 per hour)
Overhead	4.47	

In the next period, the direct labour force will be fully utilised on existing customer orders. No further work can be undertaken without restricting the manufacture of existing orders which would lead directly to lost sales.

The company has now been approached to supply a special order in the next period. The direct material cost of the special order would be £24,200 and 1,560 direct labour hours would be required. Variable overheads are assumed to vary with direct labour. The customer would be prepared to pay £63,000 for the special order.

REQUIRED

- (a) On the basis of the above information:
- (i) Calculate whether the special order is worthwhile (11 marks)
 - (ii) Calculate the minimum selling price required to justify accepting the special order. (3 marks)
- (b) Describe **three** other factors that might influence the decision. (6 marks)
- (Total 20 marks)**

MODEL ANSWER TO QUESTION 2

(a) (i) Special order:

	£	£
Selling price		63,000
Variable costs:		
Direct material	24,200	
Direct labour	11,622	(1,560 hrs @ £7.45)
Variable overhead	<u>5,811</u>	[1,560 hrs @ (£4.47 ÷ 1.2)]
		<u>41,633</u>
Contribution		21,367
Opportunity cost (lost sales contribution)		<u>26,949</u>
Incremental loss		<u>5,582</u>

Thus, the special order is not worthwhile.

Workings

Calculation of existing contribution:

Selling price per unit	£55.00
Variable costs per unit	<u>£34.27</u>
Contribution per unit	<u>£20.73</u>

Contribution per direct labour hour = $£20.73 \div 1.2 * = £17.275$

* Direct labour hours per unit = $£8.94 \text{ per unit} \div £7.45 \text{ per hour} = 1.2$

Opportunity cost (lost sales contribution) = $1,560 \text{ hours} \times £17.275 = £26,949$

(ii) Minimum selling price:

Customer offer + incremental loss = $63,000 + 5,582 = \underline{£68,582}$

or Variable costs + opportunity cost = $41,633 + 26,949 = \underline{£68,582}$

(b) Other factors (three required):

- How important is the new customer - will further orders follow?
- Will sales really be lost or could they simply be delayed?
- Will existing customers be lost longer-term if the special order is accepted?
- Could overtime be worked/additional labour employed?

QUESTION 3

A company manufactures a product (Product Y) which is made up of three raw materials (Material X1, Material X2 and Material X3). The standard raw material cost of Product Y is £9.50 per unit of output.

In the period just ended, during which 62,240 units of Product Y were manufactured, the following raw material variances occurred:

Price variances (calculated on usage):

Material X1	£1,932	Favourable
Material X2	£6,800	Adverse
Material X3	£15,264	Favourable

Mix variances:

Material X1	No variance	
Material X2	£3,000	Favourable
Material X3	£4,250	Adverse

Yield variance £1,330 Favourable

REQUIRED

(a) Calculate, in relation to Product Y for the period just ended, the:

- (i) standard raw material cost of output (2 marks)
- (ii) standard cost of raw materials used (3 marks)
- (iii) actual cost of raw materials used (3 marks)
- (iv) total raw material usage variance. (2 marks)

Direct labour standards per unit of Product Y are 0.2 hours at £9.00 per hour. 12,110 direct labour hours were worked on the manufacture of the 62,240 units of Product Y in the period just ended at a cost of £110,201.

REQUIRED

(b) Calculate, in relation to Product Y for the period just ended, the:

- (i) direct labour rate variance (2 marks)
- (ii) direct labour efficiency ratio. (4 marks)

(c) Suggest possible causes of the figures calculated in (b).

(4 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 3

(a) (i) **Standard raw material cost of output:**

62,240 units x £9.50 per unit = £591,280

(ii) Standard raw material cost of output	£591,280	
Yield variance	(1,330)	
Total mix variance (4,250 – 3,000)	<u>1,250</u>	
Standard cost of raw materials used	<u>£591,200</u>	

(iii) Standard cost of raw materials used	£591,200	
Total price variance (– 1,932 – 15,264 + 6,800)	<u>(10,396)</u>	
Actual cost of raw materials used	<u>£580,804</u>	

(iv) Yield variance	£1,330	Favourable
Total mix variance (4,250 – 3,000)	<u>£1,250</u>	Adverse
Total raw material usage variance	<u>£80</u>	Favourable

(b) (i) **Direct labour rate variance:**

£110,201 – (12,110 hours x £9.00 per hour) = £1,211 Adverse

(ii) **Direct labour efficiency ratio:**

Standard hours of actual output x 100%

Actual hours worked

Standard hours of output = (62,240 x 0.2) = 12,448 hours

Direct labour efficiency ratio = $\frac{12,448}{12,110} \times 100\% = \underline{102.8\%}$

(c) The adverse direct labour rate variance indicates that the actual rate paid was above the standard. This may be due to a higher than budgeted negotiated rate or to higher skilled (mix of) labour.

The adverse labour rate variance is more than offset by the favourable labour efficiency, indicated by a ratio greater than 100%. Hours worked were 338 less than those allowed for in the standard.

QUESTION 4

A company sells a product which requires two separate processes in the course of manufacture. At the beginning of a month 3,000 units were incomplete in Process 2 with the following costs and stages of completion:

Cost element	£	% completion
Process 1 costs	20,900	100
Material added in Process 2	8,175	80
Conversion costs	6,730	50

19,600 units were transferred to Process 2 from Process 1 during the month at a cost of £141,820. The other costs incurred in Process 2 in the month were:

	£
Material added in Process 2	70,050
Conversion costs	98,750

20,100 units were transferred from Process 2 to the finished goods warehouse in the month. 2,500 units remained incomplete in Process 2 at the end of the month with the following stages of completion:

Cost element	% completion
Process 1 costs	100
Material added in Process 2	90
Conversion costs	75

The weighted average cost method is used. No losses occur in Process 2.

REQUIRED

For Process 2 in the month:

- (a) Calculate the:
- (i) weighted average cost per unit for each cost element (7 marks)
 - (ii) cost of the units transferred to the finished goods warehouse (2 marks)
 - (iii) cost of the closing work-in-progress. (3 marks)
- (b) Prepare the process account including both units and cost. (5 marks)
- (c) Calculate the equivalent units of actual production during the month for each cost element. (3 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 4

(a) (i) **Weighted average cost per unit:**

	Process 1 costs	Process 2 materials	Conversion costs
Equivalent units:			
Output	20,100	20,100	20,100
Closing work-in-progress	<u>2,500</u>	<u>2,250</u>	<u>1,875</u>
	<u>22,600</u>	<u>22,350</u>	<u>21,975</u>
Costs (£):			
Opening work-in-progress	20,900	8,175	6,730
Period	<u>141,820</u>	<u>70,050</u>	<u>98,750</u>
	<u>162,720</u>	<u>78,225</u>	<u>105,480</u>
Cost per unit	<u>£162,720</u> 22,600	<u>£78,225</u> 22,350	<u>£105,480</u> 21,975
	£7.20	£3.50	£4.80

(ii) **Cost of units transferred to finished goods warehouse:**

$$20,100 \text{ units} \times (\text{£}7.20 + \text{£}3.50 + \text{£}4.80) = \underline{\underline{\text{£}311,550}}$$

(iii) **Cost of closing work-in-progress:**

		£
Process 1 costs	2,500 units x £7.20	18,000
Process 2 materials	2,250 equivalent units x £3.50	7,875
Conversion costs	1,875 equivalent units x £4.80	<u>9,000</u>
		<u>34,875</u>

(b) **Process 2 Account:**

	Units	£		Units	£
Opening WIP	3,000	35,805	Output	20,100	311,550
Process 1 costs	19,600	141,820	Closing WIP	2,500	34,875
Materials added		70,050			
Conversion costs		<u>98,750</u>			
	<u>22,600</u>	<u>346,425</u>		<u>22,600</u>	<u>346,425</u>

(c) **Equivalent units of production in month:**

	Process 1 costs	Process 2 materials	Conversion costs
Output and closing WIP	22,600	22,350	21,975
Less: Opening WIP	<u>3,000</u>	<u>2,400</u>	<u>1,500</u>
	<u>19,600</u>	<u>19,950</u>	<u>20,475</u>

QUESTION 5

Financial information relating to two investment centres in a company includes:

	Investment Centre A	Investment Centre B
	£	£
At end of Period 4:		
Fixed assets (net book value)	86,370	78,100
Current assets	73,300	32,220
Current liabilities	38,420	21,650
For Period 4:		
Sales	424,375	372,400
Net profit	13,580	14,896

REQUIRED

(a) Calculate, for **each investment centre** for Period 4, the:

- (i) net profit margin (%) (2 marks)
- (ii) net asset turnover (number of times) (3 marks)
- (iii) return on capital employed (%). (3 marks)

In **Investment Centre A** during Period 4:

- 80% of sales were on credit with the remaining 20% being cash sales.
- Average debtors were £52,090.
- Stock of finished goods averaged £55,500.
- The production cost of sales totalled £288,600.

REQUIRED

(b) Calculate the following ratios for **Investment Centre A** in Period 4:

- (i) debtor days (3 marks)
- (ii) stock turnover. (2 marks)

REQUIRED

(c) Demonstrate the relationship between the three ratios calculated in (a) for each investment centre and comment briefly on the financial performance of each centre on the basis of the ratios calculated in (a) and (b).

(7 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 5

(a)	Investment Centre A	Investment Centre B
(i) Net profit margin	$\frac{\pounds 13,580}{\pounds 424,375} \times 100\%$ 3.2%	$\frac{\pounds 14,896}{\pounds 372,400} \times 100\%$ 4.0%
(ii) Net asset turnover	$\frac{\pounds 424,375}{\pounds 121,250}$ 3.5 times	$\frac{\pounds 372,400}{\pounds 88,670}$ 4.2 times
(iii) Return on capital employed	$\frac{\pounds 13,580}{\pounds 121,250} \times 100\%$ 11.2%	$\frac{\pounds 14,896}{\pounds 88,670} \times 100\%$ 16.8%

- (b)
- (i) Credit sales $\pounds 424,375 \times 0.8 = \pounds 339,500$
- Debtors days** $\frac{\pounds 52,090}{\pounds 339,500} \times 365 \text{ days} = 56 \text{ days}$
- (ii) **Stock turnover** $\frac{\pounds 288,600}{\pounds 55,500} = 5.2 \text{ times}$

(c) Net profit (%) x Net asset turnover (times) = Return on capital employed (%)

For Investment Centre A, $3.2\% \times 3.5 \text{ times} = 11.2\%$

For Investment Centre B, $4.0\% \times 4.2 \text{ times} = 16.8\%$

Investment Centre B has a higher (and thus better) ROCE than Investment Centre A. This results from better performance both in net profit margin achieved on sales and in the number of times that net assets are turned into sales.

Looking further at Investment Centre A, both debtor days and stock holding seem rather high, and thus working capital is not being managed very efficiently (impacting for example on net asset turnover). However, nothing is known about the particular industry or about previous periods.

QUESTION 6

A company is evaluating the investment in new machinery to increase sales of an existing product over a five-year period.

Two alternative machines are being considered, Machine 1 and Machine 2.

Production and sales units are expected to be:

	Machine 1	Machine 2
Year 1	19,000	15,000
Year 2	20,000	15,000
Year 3	20,000	23,000
Year 4	19,000	22,000
Year 5	18,000	21,000

Details of the two machines are:

	Machine 1	Machine 2
Cost	£310,000	£330,000
Life	5 years	5 years
Residual value	£30,000	£50,000

The product sells for £20 per unit.

If made on Machine 1, the product would have variable costs of £10 per unit. If made on Machine 2 the variable costs would be £9 per unit.

Fixed costs (inclusive of straight-line depreciation of the new machine) will rise by £90,000 per annum if Machine 1 is purchased, and by £120,000 per annum if Machine 2 is purchased. All annual fixed costs and unit variable costs will remain constant over the five year period.

The company has a cost of capital of 12% per annum.

Discount factors @12%:	Year 1	0.893
	Year 2	0.797
	Year 3	0.712
	Year 4	0.636
	Year 5	0.567

REQUIRED

(a) Evaluate the investment in **each** machine using each of the following methods:

(i) net present value (13 marks)

(ii) payback. (4 marks)

(b) Advise management as to which machine should be purchased giving reasons for your decision.

(3 marks)

(Total 20 marks)

QUESTION 6

(a) (i) Net present values of Machine 1 and Machine 2

Year	Machine 1 discounted @ 12%			Machine 2 discounted @ 12%		
	Cash flow	Factor	PV	Cash flow	Factor	PV
0	(310)	1.000	(310.0)	(330)	1.000	(330.0)
1	156	0.893	139.3	101	0.893	90.2
2	166	0.797	132.3	101	0.797	80.5
3	166	0.712	118.2	189	0.712	134.6
4	156	0.636	99.2	178	0.636	113.2
5	146	0.567	82.8	167	0.567	94.7
5	30*	0.567	17.0	50*	0.567	28.4
		NPV =	<u>278.8</u>		NPV =	<u>211.6</u>

* Residual values

Workings

	Machine 1	Machine 2
Annual depreciation	$\frac{\pounds 310,000 - \pounds 30,000}{5 \text{ years}}$	$\frac{\pounds 330,000 - \pounds 50,000}{5 \text{ years}}$
	= £56,000	= £56,000
Total fixed costs	£90,000	£120,000
Less: Annual depreciation	<u>£56,000</u>	<u>£56,000</u>
Cash fixed costs	<u>£34,000</u>	<u>£64,000</u>
Selling price	£20	£20
Less: Variable cost	<u>£10</u>	<u>£9</u>
Contribution per unit	<u>£10</u>	<u>£11</u>
Net operating cash flows:		
	£000	£000
Year 1 (19,000 x £10) – £34,000	156	(15,000 x £11) – £64,000 101
Year 2 (20,000 x £10) – £34,000	166	(15,000 x £11) – £64,000 101
Year 3 (20,000 x £10) – £34,000	166	(23,000 x £11) – £64,000 189
Year 4 (19,000 x £10) – £34,000	156	(22,000 x £11) – £64,000 178
Year 5 (18,000 x £10) – £34,000	146	(21,000 x £11) – £64,000 167

(ii) Payback period for Machine 1:

Year	Cash flows £000	Cumulative cash flows £000
0	(310)	(310)
1	156	(154)
2	166	12

Payback period = 1 + (154 ÷ 166) = 1.93 years

MODEL ANSWER TO QUESTION 6 CONTINUED

Payback period for Machine 2:

Year	Cash flows	Cumulative cash flows
	£000	£000
0	(330)	(330)
1	101	(229)
2	101	(128)
3	189	61

Payback period = $2 + (128 \div 189) = 2.68$ years

- (b) Machine 1 should be purchased as it has a higher NPV and a shorter payback period.

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