

Management Accounting Level 3



International
Qualifications from EDI

Model Answers

Series 2 2009 (3024M) Malaysia

Management Accounting Level 3

Series 2 2009 (Malaysia)

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 manufactures and sells four products. Details of the four products are as follows:

	Product A	Product B	Product C	Product D
	RM per unit	RM per unit	RM per unit	RM per unit
Selling price	<u>112</u>	<u>100</u>	<u>69</u>	<u>195</u>
<u>Deduct costs</u>				
Direct materials (at RM16 per kg)	16	24	32	40
Direct labour (at RM12 per hour)	36	24	12	60
Variable overheads	27	18	9	45
Fixed overheads	<u>18</u>	<u>12</u>	<u>6</u>	<u>30</u>
	<u>97</u>	<u>78</u>	<u>59</u>	<u>175</u>
Profit	15	22	10	20
Production and sales per period	4,500 units	5,750 units	6,450 units	2,460 units

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

The availability of direct labour and direct materials will be limited to 31,000 hours and 33,000 kg respectively for the coming period.

REQUIRED

For the coming period:

- Determine which of the resources (direct labour or direct materials) will be the limiting factor, showing clearly your workings.
(5 marks)
- Prepare a production schedule that will maximise profit and calculate the amount of the profit.
(11 marks)
- Suggest **two** courses of action that the company may take in order to address the limiting factor problem identified in part (a) above.
(4 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 1

(a) The limiting factor is determined by comparing the number of direct labour hours and the amount of direct materials required with the availability of these resources for production and sales.

	Product A	Product B	Product C	Product D	Total
<u>Labour requirement</u>					
Production/sales units	4,500	5,750	6,450	2,460	
x hours per unit (W1)	x <u>3</u>	x <u>2</u>	x <u>1</u>	x <u>5</u>	
	<u>13,500</u>	<u>11,500</u>	<u>6,450</u>	<u>12,300</u>	43,750 hours
<u>Materials requirement</u>					
Production/sales units	4,500	5,750	6,450	2,460	
x kg per unit (W2)	x <u>1</u>	x <u>1.5</u>	x <u>2</u>	x <u>2.5</u>	
	<u>4,500</u>	<u>8,625</u>	<u>12,900</u>	<u>6,150</u>	32,175 kg

Direct labour is the limiting factor since 43,750 hours are required but only 31,000 hours are currently available. The materials requirement of 32,175 kg is less than the available amount of 33,000 kg.

(b)

	Product A RM per unit	Product B RM per unit	Product C RM per unit	Product D RM per unit
Selling price	<u>112</u>	<u>100</u>	<u>69</u>	<u>195</u>
<u>Deduct Variable costs</u>				
Direct materials	16	24	32	40
Direct labour	36	24	12	60
Variable overheads	<u>27</u>	<u>18</u>	<u>9</u>	<u>45</u>
	<u>79</u>	<u>66</u>	<u>53</u>	<u>145</u>
Contribution per unit	<u>RM33</u>	<u>RM34</u>	<u>RM16</u>	<u>RM50</u>
Direct labour hours per unit	3	2	1	5
Contribution per labour hour	RM11	RM17	RM16	RM10
Ranking	3 rd	1 st	2 nd	4 th

Optimum product mix and the resulting net profit

	Units	Labour hours	Total contribution RM
Product B	5,750	x 2 hours = 11,500	x RM17 = 195,500
Product C	6,450	x 1 hour = 6,450	x RM16 = 103,200
Product A (13,050 ÷ 3)	4,350	x 3 hours = <u>13,050</u>	x RM11 = <u>143,550</u>
		<u>31,000</u>	<u>442,250</u>
		<u>Less Fixed costs</u>	<u>- 262,500 [W3] 2</u>
		Net profit	<u>179,750</u>

MODEL ANSWER TO QUESTION 1 CONTINUED

Workings

W1 – Direct labour hours per unit

	A	B	C	D
Direct labour cost per unit	$\frac{RM36}{RM12} = 3$	$\frac{RM24}{RM12} = 2$	$\frac{RM12}{RM12} = 1$	$\frac{RM60}{RM12} = 5$
Direct labour rate per hour				

W2 – Direct material (kg per unit)

Direct material cost per unit	$\frac{RM16}{RM16} = 1$	$\frac{RM24}{RM16} = 1.5$	$\frac{RM32}{RM16} = 2$	$\frac{RM40}{RM16} = 2.5$
Direct material cost per kg				

$$\begin{aligned} \text{W3 – Total fixed costs} &= [(4,500 \times RM18) + (5,750 \times RM12) + (6,450 \times RM6) + (2,460 \times RM30)] \\ &= RM 262,500 \text{ [2]} \end{aligned}$$

- (c) As direct labour is the limiting factor, the company may attempt to address the shortage of direct labour hours by:
- arranging overtime work
 - sub-contracting unmet production to outside supplier.

QUESTION 2

The balance sheet of a retail company at the end of Year 3 is presented as follows:

	RM000	RM000
Fixed assets (at cost)	1,250	
<u>Less: Accumulated depreciation</u>	<u>385</u>	865
Current assets:		
Stock	175	
Trade debtors	110	
Cash at bank	<u>40</u>	<u>325</u>
		1,190
<u>Less: Current liabilities</u>		
Trade creditors		<u>140</u>
		<u>1,050</u>
Capital and reserves		
Share capital		600
Reserves		<u>200</u>
		800
Long-term liability		
10% Loan stock		<u>250</u>
		<u>1,050</u>

The following is a summary of the transactions expected by the company during Year 4:

- (1) Sales (all on credit) are estimated at RM 1,300,000 and the company expects to earn a constant gross profit of 45% on sales. It is expected that 15% of the year's sales will remain unpaid by customers at the end of the year.
- (2) All purchases will be made on credit. The company expects to owe its suppliers RM 165,000 at the end of the year. The value of unsold stock at the end of the year is expected to be RM 210,000 at cost price.
- (3) Additional fixed assets costing RM 270,000 are expected to be purchased for cash. No fixed assets are expected to be sold. It is company policy to charge depreciation at the rate of 12½% on the original cost of fixed assets (including those purchased during the year).
- (4) The interest charges on the loan stock are to be paid at the end of the year.
- (5) Operating expenses for the year (excluding depreciation charges) are estimated to be RM 245,000. All operating expenses are expected to be paid as they are incurred.
- (6) The company does not intend to declare or pay any dividends.

REQUIRED

- (a) Prepare the following for the company:
 - (i) budgeted profit statement for Year 4 (6 marks)
 - (ii) budgeted balance sheet at the end of Year 4. (9 marks)
- (b) Explain the meaning of the term **principal budget factor** in relation to the operating activities of a manufacturing business. (5 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 2

(a) (i)

Budgeted profit statement for Year 3

	RM000	RM000
Sales		1,300
<u>Less: Cost of sales:</u>		
Opening stock	175	
<u>Add Purchases</u>	<u>750</u>	
	925	
<u>Less: Closing stock</u>	<u>210</u>	<u>715</u>
Gross profit (0.45 x 1,300)		585
 <u>Less: Expenses</u>		
Depreciation [0.125 x (1,250 + 270)]	190	
Operating expenses	245	
Loan interest (0.1 x 250)	<u>25</u>	<u>460</u>
Budgeted net profit		<u><u>125</u></u>

(ii)

Budgeted balance sheet at end of Year 3

	RM000	RM000
Fixed assets (at cost) (1,250 + 270)	1,520	
<u>Less: Accumulated depreciation</u> (385 + 190)	<u>575</u>	945
 Current assets:		
Stock	210	
Trade debtors (0.15 x 1,300)	<u>195</u>	<u>405</u>
		1,350
 <u>Less: Current liabilities:</u>		
Trade creditors	165	
Bank overdraft*	<u>10 [W1] 4</u>	<u>175</u>
		<u>1,175</u>
 Capital and reserves		
Share capital		600
Reserves (200 + 125)		<u>325</u>
		925
 Long-term liability		
10% Loan stock		<u>250</u>
		<u>1,175</u>

* W1 – Budgeted cash balance

	RM000	RM000
Balance at start of Year 3		40
<u>Add: Receipts from debtors</u> (110 + 1,300 – 195)		<u>1,215</u>
		1,255
 <u>Less: Payments</u>		
Suppliers (140 + 750 – 165)	725	
Purchase of fixed assets	270	
Operating expenses	245	
Loan interest (0.1 x 250)	<u>25</u>	<u>1,265</u>
Balance at end of Year 3 – bank overdraft		<u><u>10 [W1] 4</u></u>

MODEL ANSWER TO QUESTION 2 CONTINUED

- (b) Before the commencement of the preparation of budgets, it is essential that all the elements used in formulating them are carefully examined to identify the existence of any limiting factors. If one particular item is of major significance, it will be regarded as the **principal budget factor**. The determination of the principal budget factor or limiting factor is important in the budgeting process since this is the budget which must be prepared first, with all other budgets constructed around it.

It is quite common for the level of sales to be the principal budget factor and this would have to be forecast before any other budget plans are put in place. Thus, the sales budget usually provides the basis for the production budget and other budgets such as the raw materials purchase budget and the cash budget. However, sales may not necessarily be the principal budget factor. For instance, the restricted availability of a particular type of material, grade of labour and limited plant capacity may each act as the principal budget factor.

QUESTION 3

A company operates a standard costing system for the single product which it manufactures and sells. The following data relate to the standards and budgets set for Period 6:

		RM per unit
Selling price		210.00
Direct material	(5 kg x RM16.50 per kg)	82.50
Direct labour	(4 hours x RM15.00 per hour)	60.00
Fixed overheads		31.25

Budgeted production and sales 3,600 units

The actual results for Period 6 were as follows:

Production and sales	3,920 units
Sales revenue	RM 788,750
Direct materials	21,940 kg costing RM 356,525
Direct labour	14,880 hours costing RM 234,360
Fixed overheads	RM 104,300.

REQUIRED

(a) Calculate the following variances for Period 6:

- (i) sales volume profit (3 marks)
- (ii) direct material price (2 marks)
- (iii) direct material usage (2 marks)
- (iv) direct labour rate (2 marks)
- (v) direct labour efficiency (2 marks)
- (vi) fixed overhead expenditure (2 marks)
- (vii) fixed overhead volume. (2 marks)

(b) Outline the usefulness of standard costing as a management accounting system for control.

(5 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 3

(a) (i) Selling volume profit variance:

$$\begin{array}{rcl} (\text{Standard profit}^* \times \text{Actual units}) & - & (\text{Standard profit} \times \text{Budgeted units}) \\ (\text{RM}36.25^* \times 3,920 \text{ units}) & - & (\text{RM}36.25 \times 3,600 \text{ units}) \\ \text{RM } 142,100 & - & \text{RM } 130,500 & = & \text{RM } 11,600 \text{ Favourable} \end{array}$$

$$*\text{Standard profit} = \text{RM}210 - (\text{RM}82.50 + \text{RM}60.00 + \text{RM}31.25) = \text{RM}36.25$$

(ii) Direct material price variance:

$$\begin{array}{rcl} (\text{Standard price} \times \text{Actual usage}) & - & (\text{Actual price} \times \text{Actual usage}) \\ (\text{RM}16.50 \times 21,940 \text{ kg}) & - & \text{RM } 356,525 \\ \text{RM } 362,010 & - & \text{RM } 356,525 & = & \text{RM } 5,485 \text{ Favourable} \end{array}$$

(iii) Direct material usage variance:

$$\begin{array}{rcl} (\text{Standard price} \times \text{Standard usage}) & - & (\text{Standard price} \times \text{Actual usage}) \\ [\text{RM}16.50 \times (3,920 \times 5 \text{ kg})] & - & (\text{RM}16.50 \times 21,940 \text{ kg}) \\ \text{RM } 323,400 & - & \text{RM } 362,010 & = & \text{RM } 38,610 \text{ Adverse} \end{array}$$

(iv) Direct labour rate variance:

$$\begin{array}{rcl} (\text{Standard rate} \times \text{Actual hours}) & - & (\text{Actual rate} \times \text{Actual hours}) \\ (\text{RM}15.00 \times 14,880 \text{ hours}) & - & \text{RM } 234,360 \\ \text{RM } 223,200 & - & \text{RM } 234,360 & = & \text{RM } 11,160 \text{ Adverse} \end{array}$$

(v) Direct labour efficiency variance:

$$\begin{array}{rcl} (\text{Standard rate} \times \text{Standard hours}) & - & (\text{Standard rate} \times \text{Actual hours}) \\ [\text{RM}15.00 \times (3,920 \times 4 \text{ hours})] & - & (\text{RM}15.00 \times 14,880 \text{ hours}) \\ \text{RM } 235,200 & - & \text{RM } 223,200 & = & \text{RM } 12,000 \text{ Favourable} \end{array}$$

(vi) Fixed overhead expenditure variance:

$$\begin{array}{rcl} \text{Budgeted fixed overheads} & - & \text{Actual fixed overheads} \\ (\text{RM}31.25 \times 3,600 \text{ units}) & - & \text{RM } 104,300 \\ \text{RM } 112,500 & - & \text{RM } 104,300 & = & \text{RM } 8,200 \text{ Favourable} \end{array}$$

(vii) Fixed overhead volume variance:

$$\begin{array}{rcl} (\text{Standard rate} \times \text{Actual units}) & - & (\text{Standard rate} \times \text{Budgeted units}) \\ (\text{RM}31.25 \times 3,920 \text{ units}) & - & (\text{RM}31.25 \times 3,600 \text{ units}) \\ \text{RM } 122,500 & - & \text{RM } 112,500 & = & \text{RM } 10,000 \text{ Favourable} \end{array}$$

(b) Standard costing, as a management accounting system for control, may be used to:

- set, revise and monitor standards for different activities and their costs, thus encouraging the reassessment of operational methods and usage of material resources which are likely to result in cost reductions
- establish the basis for setting realistic selling prices of products and services
- highlight variances through 'management by exception', thereby directing attention towards those items which are not proceeding according to plan
- provide the framework for assessing performance and efficiency, thereby promoting greater economy by making employees more 'cost conscious'.

QUESTION 4

A company manufacturing a single product is budgeting to sell 500,000 units of the product at RM9.60 per unit in the coming year. The product's unit production costs as a percentage of its selling price are as follows:

	%
Direct materials	35
Direct labour	20
Production overheads	25

The following information is also available:

- (1) Production and sales are expected to occur evenly throughout the year.
- (2) Production is expected to take place with an average of 12 days from the start of manufacture to the completion of product.
- (3) Direct materials are expected to be stored for an average of 7 days before being used in production.
- (4) Work-in-progress is expected to be 100% complete in terms of material input and an average of 50% complete in terms of direct labour and production overheads.
- (5) Finished products are expected to be in stock for an average of 10 days before their sale.
- (6) The company plans to grant its customers an average credit period of 75 days while it expects to take an average of 60 days to pay its suppliers of direct materials.

REQUIRED

- (a) Calculate the company's total working capital requirements for the coming year (to the nearest RM 000).
(14 marks)
- (b) Explain why the management of working capital is important for the successful operation of a business.
(6 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 4

(a) Working capital requirements:

Workings:

		RM000
Direct materials	35% x RM 4,800,000*	1,680
Direct labour	20% x RM 4,800,000	960
Production overheads	25% x RM 4,800,000	<u>1,200</u>
Total production costs		<u>3,840</u>

*Sales value = 500,000 x RM9.60 = RM4,800,000

		RM000	RM000
Direct material	(7 ÷ 365) days x RM 1,680,000		32
<u>Work-in-progress</u>			
Direct material	(12 ÷ 365) days x RM 1,680,000 x 100%	55	
Direct labour	(12 ÷ 365) days x RM 960,000 x 50%	16	
Production overheads	(12 ÷ 365) days x RM 1,200,000 x 50%	<u>20</u>	9
Finished goods	(10 ÷ 365) days x RM 3,840,000		105
Trade debtors	(75 ÷ 365) days x RM 4,800,000		<u>986</u>
			1,214
<u>Less: Trade creditors</u>	(60 ÷ 365) days x RM 1,680,000	–	<u>276</u>
Total working capital requirements for the year			<u>938</u>

(b) Working capital is the excess of current assets over current liabilities; it is the amount of additional funds needed by a business organisation to meet the requirements of its operations. An investment in plant and equipment often calls for additional working capital to pay for extra wages and other expenses, stock of raw materials and supplies required for operations of the investment.

Working capital management, therefore, involves the management of stock, debtors, creditors and cash resources with the aim of minimising the risk of insolvency and at the same time maximising the return on assets. Efficient working capital management will ensure that a company has sufficient cash to meet its day-to-day operational needs.

This may involve minimising the amount of cash tied up in stocks, collecting money owed by debtors quickly, delaying payments to creditors – without putting future supplies in jeopardy – and reducing the level of overdraft or increasing bank balances.

QUESTION 5

Fidel Limited is considering an investment project that requires the purchase of new equipment. Details of the investment project are as follows:

Estimated duration of project	3 years
Purchase cost of equipment	RM 300,000
Estimated annual accounting profits/losses:	
Year 1	RM 10,000 loss
Year 2	RM 125,000 profit
Year 3	RM 20,000 profit
Estimated disposal value of equipment	RM 60,000.

The company's depreciation policy is to write off the cost of equipment using the straight-line method. It is assumed that net cash flows occur at the end of the years to which they relate and that the company's cost of capital is 15% per annum.

Discount factors:	Year	10%	15%	20%	25%
	1	0.909	0.870	0.833	0.800
	2	0.826	0.756	0.694	0.640
	3	<u>0.751</u>	<u>0.658</u>	<u>0.579</u>	<u>0.512</u>
		<u>2.486</u>	<u>2.284</u>	<u>2.106</u>	<u>1.952</u>

REQUIRED

(a) Calculate, in relation to the investment project, the:

- (i) net present value (7 marks)
- (ii) internal rate of return. (3 marks)

Castro Limited has a maximum of RM 6,000,000 to undertake the following mutually exclusive investment projects which all yield positive net present values:

Project	Initial cost (RM000)	Present values of net cash inflows (RM000)
A	2,000	2,300
B	3,500	3,780
C	2,000	2,440
D	2,400	2,700
E	1,500	1,800

Assume that investment projects are divisible (that is, it is possible to undertake only a part of each investment project).

REQUIRED

- (b) Prepare suitable calculations to determine which of the investment projects the company should undertake in order to maximise net present values. (10 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 5

(a) (i) NPV of project:

Workings

$$\text{Annual depreciation} = \frac{\text{RM } 300,000 - \text{RM } 60,000}{3 \text{ years}} = \text{RM } 80,000$$

Annual net cash flows of project:

	<u>Year 1</u> RM000	<u>Year 2</u> RM000	<u>Year 3</u> RM000
Accounting profit/loss	(10)	125	20
Add depreciation	<u>80</u>	<u>80</u>	<u>80</u>
Net cash inflow	<u>70</u>	<u>205</u>	<u>100</u>

Year	Cash flow RM000	<u>Discounting @ 15%</u>	
		Factor	Present value RM000
0	(300)	1.000	(300.00)
1	70	0.870	60.90
2	205	0.756	154.98
3	160 *	0.658	<u>105.28</u>
		NPV =	<u>21.16</u> = RM 21,160

* Includes residual value of RM 60,000

(ii) IRR of project:

Year	Cash flow RM000	<u>Discounting @ 20%</u>	
		Factor	Present value RM000
0	(300)	1.000	(300.00)
1	70	0.833	58.31
2	205	0.694	142.27
3	160	0.579	<u>92.64</u>
		NPV =	<u>(6.78)</u>

$$\text{IRR} = 15\% + \{5\% \times [21.16 \div (21.16 + 6.78)]\} = \underline{18.8\%}$$

QUESTION 5 CONTINUED

(b)

Using Profitability Index (PI), the investment projects can be ranked as follows:

Project	Initial cost	Present value of net cash flows	Profitability index	Ranking
	RM000	RM000	RM000	
A	2,000	2,300	$\frac{2,300}{2,000} = 1.15$	3 rd
B	3,500	3,780	$\frac{3,780}{3,500} = 1.08$	5 th
C	2,000	2,440	$\frac{2,440}{2,000} = 1.22$	1 st
D	2,400	2,700	$\frac{2,700}{2,400} = 1.125$	4 th
E	1,500	1,800	$\frac{1,800}{1,500} = 1.20$	2 nd

The RM 6,000,000 funds can be allocated based on the above rankings as follows:

	Funds RM000	NPV RM000	
Total funds available	6,000		
First, invest in Project C	– <u>2,000</u>	440.0	(2,440 – 2,000)
	4,000		
Next, invest in Project E	– <u>1,500</u>	300.0	(1,800 – 1,500)
	2,500		
Next, invest in Project A	– <u>2,000</u>	300.0	(2,300 – 2,000)
	500		
Partially invest in Project D	– <u>500</u>	<u>62.5</u>	$[(500 \div 2,400) \times (2,700 - 2,400)]$
		<u>1,102.5</u>	
		= RM 1,102,500	

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