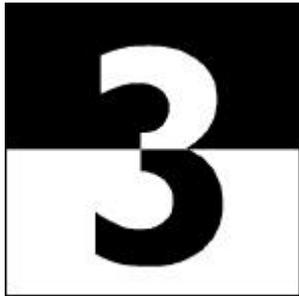


# Model Answers for Management Accounting



THIRD LEVEL

Series 2 2002

(Code 3023)





# Management Accounting Third Level

## Series 2 2002

### How to use this booklet

Model Answers have been developed by LCCIEB to offer additional information and guidance to Centres, teachers and candidates as they prepare for LCCIEB examinations. 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
- (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.

The London Chamber of Commerce and Industry Examinations Board provides Model Answers to help candidates gain a general understanding of the standard required. The Board accepts that candidates may offer other answers that could be equally valid.

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## **Management Accounting Third Level Series 2 2002**

### **QUESTION 1**

#### **REQUIRED**

- (a) List the progressive stages in the preparation of a company's budget. (6 marks)
- (b) Define, and comment on, the different types of standard used in standard costing. (7 marks)
- (c) Assess the importance of variance analysis and explain any limitations in using it as the basis for remedial action. (7 marks)

**(Total 20 marks)**

## Model Answer to Question 1

(a) The progressive stages in the budgeting process are:

- (i) Establishment and communication of a budget timetable along with policy and guidelines
- (ii) Determination of the limiting factor
- (iii) Preparation of the sales budget
- (iv) Initial preparation of various resource budgets (including cash) and a budgeted Profit & Loss Account and Balance Sheet
- (v) Budget negotiation
- (vi) Co-ordination and review of budgets
- (vii) Finalisation of agreed budgets

(b) *Basic standard*: a constant standard set some time ago which has existed without any adjustment for changes in operating conditions.

As such, basic standards can provide a benchmark for assessing trends/progress over time. However, they do not represent any sort of target for employees.

*Ideal standard*: a standard set at a level of efficiency that makes no allowance for losses, waste or downtime.

Such standards can only be achieved under the most favourable operating conditions and, therefore, can be de-motivating. They represent goals to be aimed for rather than performance that can currently be achieved.

*Attainable standard*: a standard set at a level that represents a target that can be achieved under efficient operating conditions.

As such, they include appropriate allowance for loss, waste and machine downtime.

If set as a challenging, but achievable, target they can act to motivate improved performance, especially if bonuses are attached.

Thus basic and ideal standards may have a place in the longer term within a standard costing system, but attainable standards are likely to be most useful for short-term performance assessment.

(c) Variance analysis enables management, by exception, to identify aspects of the business that are not going according to plan, in order that attention can be directed. In this way, valuable management resources can be put to most effective use.

The limitations of variance analysis are the difficulties of achieving the above. Variances occur for a number of reasons, many of which may be outside the control of the management of a business.

Even if variances can be acted upon, taking appropriate action depends upon being able to identify correctly the underlying cause of the variance.

## QUESTION 2

Divisions A and B are investment centres within the AB Group. Division A manufactures a component especially for Division B. The anticipated requirements for, and costs and transfer price of, this component for the year ahead are as follows:

Production	112,500 units
Variable cost	£5.70 per unit
Fixed cost	£2.40 per unit
Transfer price	£8.50 per unit

Company C, which is not part of the AB Group, has offered to supply the component to Division B for £7.50 per unit.

### REQUIRED

- (a) Explain fully the term 'investment centre'. (4 marks)
- (b) Contrast an investment centre with a profit centre. (3 marks)
- (c) Outline the objectives of transfer pricing. (3 marks)
- (d) Establish, on the basis of the figures supplied above, whether it is worthwhile for the AB Group to continue to manufacture the component. (4 marks)
- (e) Determine whether Division A would benefit if the component were to be purchased from Company C. (4 marks)
- (f) Determine whether Division B would benefit if the component were to be purchased from Company C. (2 marks)

**(Total 20 marks)**

## Model Answer to Question 2

- (a) An investment centre is a responsibility centre (ie a department or organisation function whose performance is the direct responsibility of a specific manager) in which the manager takes decisions regarding investment in fixed assets. Managers of investment centres are thus responsible for revenues, costs and assets. Performance is usually measured by relating profit to the amount invested.
- (b) In contrast to an investment centre, a profit centre is a responsibility centre where the manager only has responsibility for the profit generated from the use of assets. Managers of profit centres are thus responsible for revenues and for costs but not for fixed assets.
- (c) Objectives of transfer pricing:
  - (i) enable performance evaluation of each responsibility centre.
  - (ii) ensure that each responsibility centre is encouraged to act in the best interests of the group.
- (d) In the short term there is a saving of £1.80 per unit (£7.50 - £5.70) from continued manufacture, but it is more questionable longer term (current buying-in price of £7.50 per unit compares with a total unit cost of manufacture of £8.10).
- (e) In the short term Division A would lose a contribution (and profit) of £2.80 per unit (£8.50 - £5.70). In the longer term, even if all costs could be avoided, Division A would still lose profit (£8.50 - £8.10).
- (f) Division B would benefit by £1.00 per unit (£7.50 - £8.50).

### QUESTION 3

A company has share capital and reserves totalling £7,000,000 and a gearing ratio, measuring the proportion of long-term debt to total long-term capital employed, of 30%. The weighted-average cost of capital, used in the evaluation of investment projects, is established from the following annual cost of each component of long-term capital:

Share capital and reserves	13%
Debt capital	9%.

An investment proposal under consideration would require an initial outlay of £170,000 with forecast cash inflows of £50,000 per annum for 5 years. A positive terminal value of £20,000 would be expected in Year 6.

Discount factors at 10% and 20% are as follows:

	<b>10%</b>	<b>20%</b>
Year 1	0.909	0.833
Year 2	0.826	0.694
Year 3	0.751	0.579
Year 4	0.683	0.482
Year 5	0.621	0.402
Year 6	0.564	0.335

#### REQUIRED

Calculate:

- (a) the weighted-average cost of capital (% per annum) (4 marks)
- (b) the internal rate of return (IRR) of the proposed project and advise the company whether the investment is worthwhile (9 marks)
- (c) the return on total long-term capital employed (ROCE) and the residual income (RI) for the company as a whole if net profit before interest in the current year is expected to be £1,600,000. (7 marks)

**(Total 20 marks)**

### Model Answer to Question 3

(a) Weighted-average cost of capital:

$$\begin{aligned} \text{Share capital } 0.7 \times 0.13 &= 0.091 \\ \text{Debt capital } 0.3 \times 0.09 &= \underline{0.027} \\ \underline{1.118} - 1 \times 100\% &= \underline{11.8\%} \end{aligned}$$

(b) Year	Cash flow £000	Discount factor 10%	Present value £000	Discount factor 20%	Present value £000
0	(170)	1.000	(170)	1.000	(170)
1-5	50	3.790	189.50	2.990	149.50
6	20	0.564	<u>11.28</u>	0.335	<u>6.70</u>
			<u>30.78</u>		<u>(13.80)</u>

$$\text{IRR} = 10\% + \left\{ 10\% \times \frac{30.78}{44.58} \right\}$$

$$= \underline{16.9\%}$$

The investment is worthwhile (because IRR (16.9%) > WACC (11.8%)).

$$(c) \text{ ROCE} = \frac{\underline{\pounds 1,600,000}}{\pounds 10,000,000} \times 100\%$$

$$= \underline{16\%}$$

$$\text{RI} = \pounds 1,600,000 - (\pounds 10,000,000 \times 0.118)$$

$$= \underline{\pounds 420,000}$$

#### QUESTION 4

A company manufactures a liquid which it sells in 50 litre containers at a selling price of £80 per container. The processing plant has an output capacity of 200,000 containers per annum. Current capacity utilisation is only 60%.

Management is considering a reduction in the selling price of the product in order to capture a larger market share. The results of market research indicate the following relationship between selling price and sales quantity:

<b>Selling price (£ per 50 litre container)</b>	<b>Sales quantity (50 litre containers per annum)</b>
80.00	120,000
77.50	130,000
75.00	150,000
70.00	175,000

Variable costs are £45 per container. Fixed costs are currently £3,600,000 per annum but would increase by £190,000 per annum if production exceeds 160,000 containers per annum.

#### REQUIRED

- (a) Tabulate the sales, costs and profit at each of the four possible selling prices, and thus recommend the selling price to maximise profit. (10 marks)

The market research data indicates the following range of possible sales volumes at a selling price of £75 per container:

125,000 units,	probability 0.3
150,000 units,	probability 0.5
165,000 units,	probability 0.2

#### REQUIRED

- (b) Calculate the expected value of sales (number of containers) at a selling price of £75. (3 marks)
- (c) Discuss how this further information could affect the decision regarding selling price. Carry out any additional calculations that you consider relevant in order to illustrate your discussion. (7 marks)

**(Total 20 marks)**

**Model Answer to Question 4**

(a) Selling price	Sales units	Sales rev. £000	Var. costs £000	Contribution £000	Fixed costs £000	Profit £000
80	120,000	9,600	5,400	4,200	3,600	600
77.5	130,000	10,075	5,850	4,225	3,600	625
75	150,000	11,250	6,750	4,500	3,600	900
70	175,000	12,250	7,875	4,375	3,790	585

The selling price that would maximise profit is £75 per container.

(b) Expected value of sales:

$$\begin{aligned}
 125,000 \times 0.3 &= 37,500 \\
 150,000 \times 0.5 &= 75,000 \\
 165,000 \times 0.2 &= \underline{33,000} \\
 &\underline{145,500} \text{ containers}
 \end{aligned}$$

(c) Expected profit (on expected sales):

$$\begin{aligned}
 \text{Contribution} &= 145,500 \text{ containers @ } \text{£}30 \text{ per container } (75 - 45) \\
 &= \text{£}4,365,000 \\
 \text{less fixed costs} &\underline{\text{£}3,600,000} \\
 &= \text{profit} \quad \underline{\text{£}765,000}
 \end{aligned}$$

This is still above the profit on the 'best estimates' at the other selling prices. However, there is a 30% chance that the selling price reduction to £75 per container will have little impact on sales volume. If sales only increase by 5,000 units (125,000 – 120,000) at the reduced price of £75 then profit becomes only £150,000 [(125,000 × 30) – 3,600,000]. This is significantly below the current level. If management are risk averse they may decide to leave the selling price unchanged.

### QUESTION 5

Representative manufacturing costs for a company, for four different levels of output in a period, are as follows:

		Units			
	10,000	12,000	15,000	19,000	
Costs:					
Direct materials	18,400	22,080	27,600	34,960	
Direct labour	13,500	16,200	20,250	25,650	
General services	3,500	3,900	4,500	5,300	
Machine maintenance	5,660	6,260	7,160	8,360	
Building related costs	7,200	7,200	7,200	7,200	
Depreciation	7,000	7,200	7,500	7,900	
Management	3,000	3,000	3,400	3,400	

#### REQUIRED

(a) Analyse the seven cost elements above into the following four categories:

Variable  
Semi-variable  
Stepped-fixed  
Fixed.

(4 marks)

(b) Using the high-low method, analyse the semi-variable costs into variable and fixed components.

(6 marks)

(c) Forecast the total manufacturing costs that would be incurred at an output of 13,800 units.

(4 marks)

The average selling price is £6.00 per unit and administration and selling costs (all fixed) are £7,000 per period.

#### REQUIRED

(d) Calculate the break-even point (in units) per period.

(6 marks)

**(Total 20 marks)**

### Model Answer to Question 5

- (a) Variable costs – direct materials, direct labour  
Semi-variable costs – general services, machine maintenance, depreciation  
Stepped-fixed costs – management  
Fixed costs – building related costs

- (b) At 10,000 units semi-variable costs = £16,160 (3,500 + 5,660 + 7,000)  
At 19,000 units semi-variable costs = £21,560 (5,300 + 8,360 + 7,900)

High-low:

$$\text{Variable component} = \frac{\pounds 21,560 - \pounds 16,160}{19,000 - 10,000 \text{ units}} = \frac{5,400}{9,000} = \pounds 0.60 \text{ per unit}$$

$$\text{Fixed component} = \pounds 16,160 - (10,000 \text{ units} @ \pounds 0.60 \text{ per unit}) = \pounds 10,160$$

$$[\text{or } \pounds 21,560 - (19,000 \text{ units} @ \pounds 0.60 \text{ per unit})]$$

- (c) At 13,800 units total manufacturing costs are:

$$(13,800 \text{ units} \times \pounds 3.79 \text{ per unit}) + \pounds 20,360 = \pounds 72,662$$

*Workings:*

$$\begin{aligned} \text{Direct materials and labour} &= \pounds 31,900 \div 10,000 \text{ units} = \pounds 3.19 \text{ per unit} \\ &+ \pounds 0.60 \\ &= \text{total variable manufacturing costs} \quad \pounds 3.79 \text{ per unit} \end{aligned}$$

$$\text{Total fixed manufacturing costs} = \pounds 20,360 [10,160 + 7,200 + 3,000 (\text{below } 15,000 \text{ units})]$$

- (d) Total fixed costs = £27,360 (20,360 + 7,000)

$$\text{Contribution per unit} = \pounds 2.21 (6.00 - 3.79)$$

$$\text{Break-even point} = \frac{\pounds 27,360}{\pounds 2.21} = 12,380 \text{ units}$$

### QUESTION 6

A company, which manufactures and sells a single product, had the following budgeted sales revenue and production costs for a period during which 10,000 units of the product were budgeted to be manufactured and sold:

	£	
Sales revenue	160,000	
Cost of sales:		
Direct materials	60,000	(8,000 kg @ £7.50 per kg)
Direct labour	24,000	(3,000 hours @ £8.00 per hour)
Fixed overhead	<u>45,000</u>	(3,000 direct labour hours @ £15.00 per hour)
	<u>129,000</u>	
Gross profit	<u>31,000</u>	

Actual sales revenue and production costs for the same period, during which 8,000 units were sold and 9,000 units were manufactured, were as follows:

	£	
Sales revenue	128,000	
Cost of production:		
Direct materials	54,094	(7,310 kg @ £7.40 per kg)
Direct labour	21,546	(2,660 hours @ £8.10 per hour)
Fixed overhead	<u>44,600</u>	
	120,240	
less increase in stock	<u>12,900</u>	
Cost of sales	<u>107,340</u>	
Gross profit	<u>20,660</u>	

### REQUIRED

- (a) Demonstrate how the increase in stock valuation of £12,900 has been calculated. (2 marks)
- (b) Reconcile the budgeted gross profit for the period with the actual gross profit by calculating and listing all of the sales and cost variances. NB There was no selling price variance in the period. (18 marks)

**(Total 20 marks)**

**Model Answer to Question 6**

(a) Standard cost per unit = £129,000 ÷ 10,000 units = £12.90 per unit

Increase in stock (units) = 1,000 (9,000 units manufactured less 8,000 units sold)

Increase in stock (valuation) = 1,000 units @ £12.90 per unit.

(b) Gross profit reconciliation:

	£	£
Budgeted gross profit		31,000
Variances:		
Sales volume profit (2,000 × 3.10)	6,200 Adv	
Direct material price [54,094 – (7,310 × 7.50)]	731 Fav	
Direct material usage [(7,310 – 7,200) × 7.50]	825 Adv	
Direct labour rate [21,546 – (2,660 × 8.00)]	266 Adv	
Direct labour efficiency [(2,660 – 2,700) × 8.00]	320 Fav	
Fixed overhead expenditure (44,600 – 45,000)	400 Fav	
Fixed overhead volume [45,000 – (9,000 × 4.5)]	<u>4,500 Adv</u>	<u>10,340 Adv</u>
Actual gross profit		<u>20,660</u>



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