



**SERIES 3 EXAMINATION 2002**

**MANAGEMENT ACCOUNTING**

**THIRD LEVEL**

(Code No: 3023)

WEDNESDAY 19 JUNE

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***Instructions to Candidates***

- (a) *The time allowed for this examination is 3 hours.*
- (b) *Answer 5 questions.*
- (c) *All questions carry equal marks.*
- (d) *All answers must be clearly and correctly numbered but need not be in numerical order.*
- (e) *Your answers should be written in blue or black ink/ballpoint. Pencil may be used only for graphs, charts, diagrams, etc.*
- (f) *Candidates may use calculators provided the calculators give no printout, have no word display facilities, are silent and cordless. The provision of batteries and responsibility for their condition must rest with the candidate.*
- (g) *All workings must be shown.*

## QUESTION 1

### REQUIRED

(a) Explain briefly each of the following cost classifications:

- (i) variable
- (ii) fixed
- (iii) semi-variable
- (iv) stepped-fixed.

(7 marks)

### REQUIRED

(b) Explain fully the high-low method of identifying cost behaviour and outline its limitations.

(7 marks)

The high-low method has been used by a company to identify the behaviour of costs within its business. The following function has been established:

$$y = 10,000 + 0.9x$$

where:

$y$  represents total costs (£) in a period

$x$  represents the level of activity (output units) in the period

### REQUIRED

(c) Prepare a graph to demonstrate the above cost function up to activity of 20,000 units of output in a period.

(6 marks)

**(Total 20 marks)**

## QUESTION 2

A company manufactures a product which is distributed through three sales offices and sold to customers for £35 per unit. The following information is available relating to the company's budget for the following period:

	<b>Factory</b>	<b>Sales Office 1</b>	<b>Sales Office 2</b>	<b>Sales Office 3</b>
Production (units)	70,000			
Sales (units)		25,000	35,000	12,000
Variable costs (£/unit):				
Production	16.50			
Distribution		2.20	2.10	2.60
Fixed costs (£000)	588,000	147,000	165,000	126,000

### REQUIRED

- (a) Prepare a budgeted trading statement for the period to determine the profit (net of all costs) for each sales office and for the company as a whole. Assume that a stock of finished units is kept, valued at full production cost based on normal output of 70,000 units per period. (10 marks)
- (b) State whether, and explain why, a higher or lower profit would be budgeted for the period if the company used a marginal costing, rather than an absorption costing, system. (5 marks)
- (c) Calculate the change in the company's budgeted profit if Sales Office 3 was closed prior to the period. Assume that:
- the customers of Sales Office 3 would not be served by either of the remaining sales offices
  - all costs would be saved in Sales Office 3
  - 12,000 fewer units would be produced but the £ per unit stock valuation would not change. (5 marks)

**(Total 20 marks)**

### QUESTION 3

A company has to choose between two projects, Project A and Project B. Cash inflow projections are as follows:

Year	Project A £000	Project B £000
1	100	200
2	200	200
3	300	200
4	400	200
5	500	200

The projects require an initial investment of:

Project A	£900,000
Project B	£640,000

The cost of capital is 12% per annum. Discount factors between 12% and 18% are as follows:

Year	12%	13%	14%	15%	16%	17%	18%
1	0.893	0.885	0.877	0.870	0.862	0.855	0.847
2	0.797	0.783	0.769	0.756	0.743	0.731	0.718
3	0.712	0.693	0.675	0.658	0.641	0.624	0.609
4	0.636	0.613	0.592	0.572	0.552	0.534	0.516
5	<u>0.567</u>	<u>0.543</u>	<u>0.519</u>	<u>0.497</u>	<u>0.476</u>	<u>0.456</u>	<u>0.437</u>
	<u>3.605</u>	<u>3.517</u>	<u>3.433</u>	<u>3.352</u>	<u>3.274</u>	<u>3.199</u>	<u>3.127</u>

#### REQUIRED

(a) Calculate for each project:

- (i) the net present value
- (ii) the internal rate of return.

(12 marks)

(b) On the basis of your calculations in (a), advise management regarding the choice of project and explain the reasoning behind your advice.

(4 marks)

(c) Explain how the profitability index is calculated and discuss whether the profitability index would assist management in its choice of project in the situation above.

(4 marks)

**(Total 20 marks)**

#### QUESTION 4

A component requires three separate operations in the course of its manufacture. Details of the standard time required by direct operatives in each operation (expressed as the number of components processed per hour) and the labour grade for each operation, are as follows:

	<b>Operation 1</b>	<b>Operation 2</b>	<b>Operation 3</b>
Components per hour	40	50	25
Labour grade	B	B	A

A standard 40 hour week is worked and the budgeted production target is 16,000 components per week. The hourly wage rates for operatives in Grades A and B are £7.50 and £6.00 respectively.

#### REQUIRED

Calculate:

- (a) the budgeted number of direct operatives required for each operation, and in total, in order to achieve the production target (4 marks)
- (b) the standard direct labour cost per component (in each operation and in total). (4 marks)

In the week just ended, output was increased by 12½% over target by each of the budgeted operatives working six hours overtime. The basic wage rate paid was as per standard with overtime paid at a premium of 50% over the basic rate. Overtime premium is included within the direct labour cost.

#### REQUIRED

Calculate for the week:

- (c) the actual total direct labour cost per component manufactured (to three decimal places of £) (5 marks)
- (d) the direct labour rate and efficiency variances. Show clear workings for each variance. (7 marks)

**(Total 20 marks)**

## QUESTION 5

The following standard costs relate to the two products manufactured and sold by a company:

	<b>Product Y</b>	<b>Product Z</b>
	<b>£/unit</b>	<b>£/unit</b>
Direct materials	25.00	18.00
Direct labour	20.00	15.00
Variable overhead	5.00	4.00
Fixed overhead	20.00	20.00

Fixed overhead per unit is based on production of 25,000 units of Product Y and 20,000 units of Product Z per period.

Unit selling prices are £80 for Product Y and £65 for Product Z.

### REQUIRED

Calculate:

- (a) the contribution/sales ratio (percentage to one decimal place):
- (i) of each of Products Y and Z
  - (ii) of the company, based on the above production mix
- (6 marks)
- (b) the margin of safety (nearest £000) on the assumption that the above production quantities are sold each period
- (7 marks)
- (c) the percentage increase in profit per period if the sales volume of each product was 10% higher than the figures given above
- (4 marks)
- (d) the break-even point (nearest £000) if the sales mix changed such that the total sales revenue was divided equally between the two products.
- (3 marks)

**(Total 20 marks)**

## QUESTION 6

1,000 tonnes of a raw material costing £118,500 were input to Process 1 in a period. At the end of this process, 5 tonnes of material per 100 tonnes of input are normally extracted as valueless waste. 55 tonnes of waste were actually extracted in the period. The remaining output was transferred to Process 2 where no further materials were added.

Weight loss occurs by evaporation in Process 2. During the period a 20% weight loss occurred. This was normal as was the output of 20 tonnes of a by-product, saleable at £36 per tonne, and joint products X and Y in equal proportions by weight.

Conversion costs in the period were:

Process 1, £48,700

Process 2, £41,952

There was no work-in-process at the beginning or end of the period in either process.

Selling prices of Products X and Y are £260 and £380 per tonne respectively.

### REQUIRED

- (a) Prepare the Process 1 Account for the period. (7 marks)
- (b) Apportion the costs incurred in Process 2 in the period (including the cost of transfers from Process 1 and net of by-product sales) to the joint products on the basis of sales value. (6 marks)
- (c) Calculate the profit per tonne of each of the two main products. (7 marks)

**(Total 20 marks)**

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