



**SERIES 3 EXAMINATION 2001**

**MANAGEMENT ACCOUNTING**

**THIRD LEVEL**

(Code No: 3023)

FRIDAY 15 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) Outline the merits and limitations of both the accounting rate of return method and also the payback method of capital investment project appraisal. (6 marks)
- (b) Describe and contrast the two main discounted cash flow methods of capital investment project appraisal (ie net present value (NPV) and internal rate of return (IRR)). (7 marks)

A company has evaluated the worth of two proposed investment projects as follows:

	<b>NPV at 12%</b> <b>(the cost of capital)</b>	<b>NPV at 18%</b>
Project 1	£28,400	(£6,900)
Project 2	£16,800	(£1,200)

### REQUIRED

- (c) Draw a graph of the above situation. Explain why the NPV and IRR methods may not rank projects in the same order, using your graph as an illustration. (7 marks)

**(Total 20 marks)**

## QUESTION 2

A company will commence operations in September with £150,000 cash at bank, raised from an issue of share capital. A stock of goods costing £45,000 will be purchased in August, with further purchases in the following three months sufficient to increase stock by £5,000 each month. Goods are purchased on one month's credit.

Sales are to be made on credit at a mark-up of 40% on cost. Sales in the first three months of operations, at a selling price of £14 per unit, are expected to be:

September	1,500 units
October	4,500 units
November	5,000 units

50% of customers are expected to pay in the month following sale and the remaining 50% one month later.

Variable overheads are forecast at 5% of sales, payable in the month in which they are incurred. Fixed overheads, excluding depreciation, are expected to be £11,800 per month starting in September. Fixed overheads are payable one month after they are incurred. Depreciation of fixed assets will be £2,000 per month on the capital expenditure of £120,000 that will take place in August. Payment will be made in September.

Interest is payable monthly, at a rate of 12% per annum, on any opening overdraft balances.

### REQUIRED

- (a) Prepare a cash budget for **each** of the three months, September to November, showing clearly any overdraft required and the associated interest costs. (13 marks)
- (b) Calculate the number of units in stock at the end of November. (3 marks)
- (c) Calculate the profit after interest in November if a marginal costing system is used. (4 marks)

**(Total 20 marks)**

### QUESTION 3

The following are the expected production overhead costs for a factory department at three different levels of activity in a period:

	Output (units)		
	16,000	20,000	24,000
	£	£	£
Variable costs	14,000	17,500	21,000
Semi-variable costs	12,200	13,000	13,800
Fixed costs	<u>31,000</u>	<u>31,000</u>	<u>31,000</u>
	<u>57,200</u>	<u>61,500</u>	<u>65,800</u>

The total production overhead costs of the department for a period can be calculated using an equation of the form:

$$y = a + bx$$

where:

$y$  is the total production overhead cost (£)

$a$  is the total fixed production overhead cost (£)

$b$  is the variable production overhead cost (£ per unit of output)

$x$  is the number of units of output.

#### REQUIRED

- (a) Using the above data, calculate the values of  $a$  and  $b$ . (6 marks)
- (b) Estimate the total production overhead costs for the department in a period if 18,000 units are manufactured. (2 marks)
- (c) Calculate the predetermined production overhead absorption rate, per unit of output for the department, based on planned production of 20,000 units in a period. (2 marks)
- (d) Using the absorption rate established in (c) above, calculate the over/under absorbed overhead if actual output is 21,500 units and costs are as expected. (5 marks)
- (e) Contrast the way in which production overhead costs are attributed to products using activity based costing (ABC) with the more traditional full absorption costing approach. (5 marks)

**(Total 20 marks)**

#### QUESTION 4

##### REQUIRED

- (a) Comment on the use of 'full cost plus' and 'marginal cost' as the basis for transfer pricing. (6 marks)

Company A, one of the divisions within a group of companies, manufactures a component for Company B, another division within the group. In the next period, Company B anticipates a requirement for 10,000 units of the component. The component is currently purchased from Company A at a transfer price based on full cost.

At the expected level of demand, the costs of Company A supplying the component to Company B in the next period are expected to be:

Variable costs	£3.70 per unit
Fixed costs	£18,000 for the period.

Company A would like to change the basis for the calculation of the transfer price of the component in order to make a profit. However, an increase in the transfer price is being resisted by Company B, especially as the component is also available from a supplier outside the group at a cost price of £5.20 per unit.

##### REQUIRED

- (b) Calculate the transfer price for the component for the next period if based on full cost. (3 marks)
- (c) Calculate whether the group would gain or lose in the period if Company B purchased the component entirely from the outside supplier. (5 marks)

Assume that purchase of the component, by Company B, entirely from the outside supplier would release capacity in Company A. This surplus capacity could be used to generate a contribution of £20,000 in the period on another component.

##### REQUIRED

- (d) Determine the effect on group profit, and the effect on the profit of each of the two divisions, in these circumstances. (6 marks)

**(Total 20 marks)**

### QUESTION 5

A company with a target return on capital employed (ROCE) of 20% per annum is considering the launch of a new product.

Costs of the new product are estimated as follows:

Variable costs per unit	£11.00
Fixed costs per annum	£600,000

Estimates of annual demand for the new product, and the related requirement for working capital investment, are:

	Sales units	Working capital £
Minimum	75,000	170,000
Most likely	100,000	210,000
Maximum	120,000	245,000

The total capital employed at annual demand of 100,000 units would be £865,000.

### REQUIRED

- (a) Calculate the selling price required, at the maximum level of demand, in order to achieve the target annual ROCE. (7 marks)
- (b) Calculate the annual ROCE if the most likely sales could be achieved at a selling price of £19 per unit. (4 marks)
- (c) Calculate the sales revenue required, at a selling price of £20.00 per unit, in order to achieve an annual profit before interest of £210,000. (5 marks)
- (d) Describe how the range of estimates of annual demand, with a probability attached to each estimate, may be used to help decide whether to launch the new product. (4 marks)

**(Total 20 marks)**

## QUESTION 6

### REQUIRED

- (a) Explain the term **limiting factor** and its significance to a business.

(3 marks)

A company manufactures three products. Selling prices and costs of the three products are as follows:

	<b>Product A</b> <b>£/unit</b>	<b>Product B</b> <b>£/unit</b>	<b>Product C</b> <b>£/unit</b>
Selling price	4.80	5.50	7.40
Costs:			
Direct materials	1.40	1.95	2.42
Direct labour	1.20	1.20	1.80
Overheads	1.80	1.80	2.70

Fixed overheads total £49,000 per period. Overhead absorption, using direct labour hours, is based upon the following production and sales volumes per period which reflect current sales demand:

Product A	8,000 units
Product B	12,000 units
Product C	10,000 units

The company is currently experiencing a shortage of direct labour and estimates that availability will be restricted to 6,200 hours per period. All direct employees are currently paid at a rate of £6.00 per hour.

### REQUIRED

- (b) Make appropriate calculations to show that the availability of direct labour is currently a limiting factor.

(4 marks)

- (c) Determine how the available direct labour resource should be allocated to each of the products in order to maximise profit in a period.

(9 marks)

It is anticipated that an increase in the labour rate of £1.00 per hour would overcome the current shortage of direct labour supply.

### REQUIRED

- (d) Advise whether an increase in the labour rate of £1.00 per hour would be likely to result in increased profit, compared with the situation in (c) above.

(4 marks)

**(Total 20 marks)**

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