



SERIES 4 EXAMINATION 2004

MANAGEMENT ACCOUNTING

LEVEL 3

(Code No: 3023)

FRIDAY 19 NOVEMBER

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 what a limiting factor is and how it is relevant to a business. (7 marks)
- (b) State, and comment upon, the assumptions of cost-volume-profit analysis. (7 marks)
- (c) Explain, and illustrate with an example, the calculation of a selling price to achieve a specified gross margin %.
(6 marks)

(Total 20 marks)

QUESTION 2

The following data is provided relating to a production cost centre within a factory for a period:

Budget: Overhead £290,320 at output of 10,000 tonnes
Overhead £306,720 at output of 12,000 tonnes
(the high-low method may be used to establish cost behaviour)
Overhead absorption rate £26.80 per tonne (total of fixed and variable overhead)

Actual: Output 11,600 tonnes
Overhead £305,180

REQUIRED

- (a) Use the high-low method to establish the budgeted variable production overhead absorption rate. (2 marks)
- (b) Calculate for the period the:
- (i) budgeted total fixed production overhead and the fixed production overhead absorption rate (4 marks)
 - (ii) budgeted output (ie fully absorbing budgeted overhead at the rate of £26.80 per tonne) (2 marks)
 - (iii) production overhead absorbed (2 marks)
 - (iv) production overhead over/under absorption (3 marks)
 - (v) fixed production overhead volume variance. (3 marks)
- (c) Explain the difference between a fixed budget and a flexible budget. (4 marks)

(Total 20 marks)

QUESTION 3

A company is evaluating the viability of investing £800,000 in new manufacturing facilities to enable the launch of a new product. The product life cycle is estimated at six years. The manufacturing facilities would be expected to have a disposal value of £80,000 after six years.

Sales demand for the new product is estimated at two levels:

	High demand	Low demand
Year 1	12,000 units	8,000 units
Years 2– 5	20,000 units per annum	16,000 units per annum
Year 6	8,000 units	6,000 units

It is believed that there is an equal chance of each level of sales occurring.

Other details relating to the new product launch include:

- (1) Selling price: £50 per unit.
- (2) Contribution/sales ratio: 45%.
- (3) Depreciation of new manufacturing facilities: £8.00 per unit (based on the high demand estimate).
- (4) Incremental fixed overheads (other than depreciation of the new manufacturing facilities) are estimated at £110,000 per annum.
- (5) The product would be charged a £10.00 per unit share of general fixed overheads.
- (6) Investment in working capital would be £85,000 in Year 0, rising to £120,000 at the end of Year 1. The working capital investment would be released at the end of Year 6.

REQUIRED

- (a) Calculate the expected value of the sales of the new product (in units) for each of the six years.
(3 marks)
- (b) Using the expected sales units from (a) above, and other relevant information, prepare a schedule of the expected project cash flows in each year.
(9 marks)
- (c) Calculate the expected net present value and internal rate of return of the project using the following discount factors:

Discount factors:	At 10% (the cost of capital)	At 20%
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

(8 marks)

(Total 20 marks)

QUESTION 4

Investment Centre A manufactures a single product which is transferred to another investment centre in the same group. Budgets for next year for Investment Centre A include:

Sales	3,000 units
Variable costs	£40 per unit
Fixed costs	£100,000
Capital employed	£250,000 (unaffected by changes in activity)

REQUIRED

- (a) Calculate the transfer price of the product that will achieve a 20% return on capital employed (ROCE) for Investment Centre A. (6 marks)
- (b) Using the transfer price calculated in (a) above, calculate for Investment Centre A:
- (i) the break-even sales units (3 marks)
 - (ii) the profit/loss if sales are 2,800 units in the year. (3 marks)
- (c) If the transfer price is set at £85 per unit, calculate the number of units that would need to be sold for Investment Centre A to achieve a return on capital employed (ROCE) of 16%. (4 marks)
- (d) Calculate the residual income (RI) for Investment Centre A based on the budget details above and:
- Transfer price of £90 per unit
 - Cost of capital of 12% per annum. (4 marks)

(Total 20 marks)

QUESTION 5

A company manufactures and sells a single product. Budgeted data per unit of the product is:

	£ per unit
Selling price	8.50
Variable cost	3.70
Fixed production overhead	2.90

The above fixed production overhead absorption rate is based on budgeted production of 12,000 units per period. Budgeted non-production overhead (all fixed) is £16,800 per period.

Actual sales and production for two periods has been:

	Period 1	Period 2
Sales	11,600 units	12,400 units
Production	12,000 units	12,300 units

There was no stock at the start of Period 1. The selling price, unit variable costs and total fixed costs were as per budget in both periods.

REQUIRED

- (a) Prepare profit statements, using absorption costing, showing the actual results for each of the two periods.

(7 marks)

The company wishes to compare the results reported in (a) above with those that would be reported using marginal costing.

REQUIRED

- (b) Prepare profit statements, using marginal costing, showing the actual results for each of the two periods.

(7 marks)

- (c) Explain fully why the profits reported in parts (a) and (b) differ. Calculations are required to support your explanation.

(6 marks)

(Total 20 marks)

QUESTION 6

The following are the budget and actual figures for a period:

	£	£	
Budget: Sales:		260,000	(20,000 units @ £13.00)
Production: 20,000 units			
Production costs:			
Direct materials	61,200		(12,000 kg @ £5.10)
Direct labour	69,700		(8,200 hours @ £8.50)
Fixed overhead	<u>48,000</u>		(20,000 units @ £2.40)
		<u>178,900</u>	
Gross profit		<u>81,100</u>	
Actual: Sales:		257,800	(19,600 units)
Production: 20,400 units			
Production costs:			
Direct materials	62,496		(12,440 kg)
Direct labour	70,227		(8,262 hours)
Fixed overhead	<u>48,160</u>		
	180,883		
Increase in stock (at standard)	<u>(7,156)</u>		
		<u>173,727</u>	
Gross profit		<u>84,073</u>	

No raw material or work-in-progress stock is held.

REQUIRED

(a) Calculate any **six** variances (**NB not** total variances eg total direct material variance). (15 marks)

(b) Suggest a possible reason for any **three** of the variances. (**NB one** reason for each of the three variances is required). (5 marks)

(Total 20 marks)