

**Series 2 Examination 2008**

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## **COST ACCOUNTING**

**Level 3**

**Wednesday 9 April**

Subject Code: 3016

Time allowed: **3 hours**

### **INSTRUCTIONS FOR CANDIDATES**

- Answer **5** questions.
- All questions carry equal marks.
- Write your answers in blue or black ink/ballpoint. Pencil may be used only for graphs, charts, diagrams, etc.
- Begin your answer to each question on a new page.
- All answers must be correctly numbered but need not be in numerical order.
- Workings must be shown.
- Presentation is important.
- You may use a calculator provided the calculator gives no printout, has no word display facilities, is silent and cordless. The provision of batteries and their condition is your responsibility.

## QUESTION 1

A company uses a batch production method to manufacture its three products Hay, Bee and Cee. At present the company uses a traditional absorption costing system to establish the costs of production. Budgeted production data for the next period is as follows:

	Hay	Bee	Cee
Production output (units)	4,000	3,000	2,000
Production batch size (units)	20	30	10
Machine time per batch	6hrs	8hrs	5hrs
Material per batch at £15 per kg	20kg	30kg	40kg
Labour per batch at £12 per hour	6hrs	4hrs	8hrs

Variable production overheads are budgeted to be absorbed at £3.50 per labour hour.

Fixed production overheads for the period are budgeted to be £88,500, absorbed on a machine hour basis.

The company is considering the introduction of an activity based costing system.

Further investigation has revealed the following activities and related overhead costs:

Activities	Costs (£)
Product inspection	45,000
Machine set-up	25,000
Machine maintenance	12,000
Product despatch	10,200
Material handling	<u>7,500</u>
	<u>99,700</u>

Other information:

- (i) Orders budgeted: Hay 50 orders; Bee 30 orders and Cee 20 orders. Each order is expected to require one machine set up.
- (ii) One product in every ten is inspected.
- (iii) Machine maintenance is carried out regularly based on a predetermined number of machine running hours.
- (iv) Each product is packed and despatched in crates containing the following number of products per crate: Hay 20 units, Bee 50 units and Cee 25 units. The number of crates used influences product despatch costs.
- (v) Material handling costs are influenced by the quantity of material used.

## REQUIRED

Calculate the cost of one production **batch** for each product using:

- (a) Traditional absorption costing (6 marks)
- (b) Activity based costing (14 marks)

**(Total 20 marks)**

## QUESTION 2

A company has budgeted to use 2,400 units of component C10 in its production department during the forthcoming year. Production will be distributed uniformly throughout the year.

The following information is available regarding component C10:

Cost of component	£25 each (before discount)
Ordering costs	£100 per order
Stock holding costs	12% of the component cost per annum

The component can be purchased in order sizes of 200, 400, 800, 1,200 or 2,400 and it can be assumed that the company carries no buffer (safety) stock.

### REQUIRED

- (a) Produce a table showing the total annual ordering costs and the total annual stock holding costs of the component for each order size assuming no discount is received from the basic price. Identify the optimum order size.

(7 marks)

- (b) Use the EOQ formula to verify your answer.

(5 marks)

Assume that the supplier has offered the following quantity discounts:

Order size	Discount from the basic £25 unit price
0 – 799	No discount
800 - 2,399	5% discount
2,400 and over	7% discount

### REQUIRED

- (c) Advise the company on the order size that minimises the total annual cost if the quantity discounts are available. Support your advice with calculations.

(8 marks)

**(Total 20 marks)**

### QUESTION 3

Jonathon is planning to start a new business on 1 January Year 9 by producing and selling a single product. Jonathon will invest £25,000 of his own capital of which £10,000 is available at the outset with the balance in July Year 9.

Prior to commencement of the business Jonathon intends to purchase factory machinery for £15,000. This purchase will be paid for in January. His bank manager has asked for a cash budget and profit statement to support a loan application.

Jonathon has provided the following budgeted information for the first year of trading:

Period (Three months)	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
Sales (£)	20,000	30,000	36,000	44,000
Direct materials purchased (£)	4,500	6,000	7,200	8,400
Direct labour (£)	8,000	10,000	12,000	14,000
Selling expenses (£)	3,000	4,000	4,500	5,000

The following other information is available:

- (1) Sales, which are all on credit, will be spread evenly within each three month period.
- (2) Customers will be allowed a two-month credit period. It is expected that bad debts will account for 1% of the sales value.
- (3) All products will be produced in the month of sale.
- (4) Direct materials, purchased in the month of production, are payable one month after purchase.
- (5) Direct labour is payable in the month incurred
- (6) 60% of the selling expenses are payable in the period incurred, the balance being paid in the following period.
- (7) Factory overheads, excluding depreciation, are expected to be £5,400 per three month period. 40% of this cost is payable in the period incurred, the balance being paid in the following period.
- (8) Office administration overheads of £500 per month are expected to be payable one month after being incurred.
- (9) Factory machinery is expected to have a 10-year life with no scrap value and will be depreciated in equal instalments over its life.
- (10) Jonathon has applied for a £20,000 bank loan to be received at the start of business
- (11) No repayment of the loan is expected in the first year of business but interest, at 12% per annum, is payable monthly in the month after it is incurred
- (12) No stocks of raw materials or finished goods are to be held.

### REQUIRED

For the first year of trading, assuming that the bank loan is received:

- (a) Prepare a cash budget for **each** of the three month periods. (14 marks)
- (b) Prepare a single budgeted profit statement. (6 marks)

**(Total 20 marks)**

#### QUESTION 4

Quality Joints Ltd, who produce a single product (a timber door), are planning to make 1,000 doors in the following year. The production process involves a machining, an assembly and a painting operation. The company uses a standard costing system and the unit production costs are as follows:

##### Direct Material

Timber type A	6 metres at £4 per metre
Timber type B	2 metres at £2 per metre
Hinges (two per door)	£1.20 each
Lock (one per door)	£8.00 each
Paint	0.1 litres at £16 per litre

##### Direct Labour

Machining Department	1.5 hours @ £12 per hour
Assembly Department	2.0 hours @ £9 per hour
Painting Department	0.5 hours @ £8 per hour

Variable factory overheads Absorbed at £6 per direct labour hour in each of the three departments.

##### Fixed factory overheads (if absorption costing is applied)

Machining Department Absorbed at a rate of £10 per machine hour  
(The manufacture of each door takes one hour of machine time)

Assembly Department Absorbed at a rate of £8 per direct labour hour.

Painting Department Absorbed at a rate of £6 per unit.

The selling price is £200 per unit.

Planned production and sales for the first three months of the following year are as follows:

	January	February	March
Production (units)	80	80	90
Sales (units)	70	80	80

There is no stock at the beginning of January.

#### REQUIRED

(a) Produce a single budgeted manufacturing and trading account for the period January to March using:

- (i) Absorption Costing
- (ii) Marginal Costing

(16 marks)

(b) Explain the difference between the profits calculated in part (a). Your explanation should be supported with calculations.

(4 marks)

**(Total 20 marks)**

## QUESTION 5

The standard production costs per unit of a company's single product in a period were:

<b>Direct materials</b>		<b>£</b>
M01	6kg at £3 per kg	18.00
M02	4metres at £2 per metre	8.00
<b>Direct labour</b>		
Grade A	4 hours at £8 per hour	32.00
Grade B	2 hours at £10 per hour	20.00
<b>Fixed overheads</b>		<u>22.00</u>
		<u>100.00</u>

Budgeted production for this period was 1,100 units.

Actual production and costs relating to this period were as follows:

**Production**                      1,200 units

### **Direct material**

Purchases

M01                      7,320 kg purchased at a total cost of £22,960  
M02                      4,680 metres purchased at a total cost of £9,160

Issues to production

M01                      7,100kg  
M02                      4,600metres

### **Direct labour**

Grade A                      4,750 hours worked at a total cost of £37,500  
Grade B                      2,500 hours worked at a total cost of £26,500

Fixed production overheads incurred      £24,000

At the beginning of the period the following quantities of raw material were in stock:

M01      200 kg  
M02      120 metres

There were no stocks of work in progress at the beginning or end of the period.  
The company's policy is to extract price variance at the time of purchase.

## **REQUIRED**

For this period

(a) Calculate the following variances:

- (i) Direct material price and usage (for each type of raw material)
- (ii) Direct labour rate and efficiency (for each grade of labour)
- (iii) Fixed overhead expenditure and volume

(14 marks)

(b) Prepare the Raw materials account for each type of direct material.

(6 marks)

**(Total 20 marks)**

## QUESTION 6

A company, which produces a single component for the motor industry, has just completed its first year of trading. The summary profit and loss account for the year is set out below:

	£000	£000
Sales (15,000 units)		1,080
Direct Costs		
Direct material	315	
Direct labour	285	
Direct expenses	90	
Overheads		
Production	195	
Administration	60	
Selling	<u>168</u>	<u>1,113</u>
Net Loss		<u>33</u>

The following information is available:

- (1) All of the direct costs are variable with production.
- (2) The production overhead figure includes £90,000 fixed costs. The remaining production overheads vary with production.
- (3) All of the administration overheads are fixed.
- (4) Variable selling overheads are incurred at the rate of £8 per unit. The remaining selling overheads are fixed.

### REQUIRED

Calculate for Year 1:

- (a) The break-even point in units and sales value. (7 marks)
- (b) The profit that would have been earned from the sale of 20,000 units. (2 marks)
- (c) The number of units needed to be sold to achieve a profit of £11,000. (2 marks)

The company has set a profit objective of £15,000 for year 2. Two suggestions have been made as to how this profit could be achieved.

Suggestion 1:

Reduce the selling price by £3 per unit use and use a less expensive material that would reduce the direct material cost by £2 per unit.

Suggestion 2:

Increase the selling price by £3 per unit and increase advertising expenditure by £43,000. In addition use a less expensive material that would reduce the direct material cost by £2 per unit.

All other fixed costs and unit variable costs will remain unchanged for Year 2

### REQUIRED

- (d) Calculate for each suggestion how many units need to be sold to achieve the profit objective of £15,000 (9 marks)

**(Total 20 marks)**