

## **Cost Accounting Level 3**



International  
Qualifications from EDI

### **Model Answers** Series 4 2008 (3016)

# Cost Accounting Level 3

## Series 4 2008

### How to use this booklet

Model Answers have been developed by EDI to offer additional information and guidance to Centres, teachers and candidates as they prepare for LCCI International Qualifications. 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, plus a fully worked example or sample answer (where applicable)
- (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.

EDI provides Model Answers to help candidates gain a general understanding of the standard required. The general standard of model answers is one that would achieve a Distinction grade. EDI accepts that candidates may offer other answers that could be equally valid.

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## QUESTION 1

A company has three production departments (Machining, Assembly and Finishing) and two service departments (Stores and Maintenance) within its factory. The budgeted production overhead costs, allocated to the five departments for a period, were as follows:

Allocated overheads	£
Machining dept	83,000
Assembly dept	40,000
Finishing dept	23,000
Stores dept	34,500
Maintenance dept	37,000

The following budgeted costs for the period have yet to be apportioned to the five departments:

	£
Building related	20,000
Labour related	12,000
Depreciation of machinery	10,000

In addition, the following budgeted information relating to the five departments for the period is available:

Department	Floor Area (Sq metres)	Number of Employees	Machine Value (£)	Direct Labour Hours	Machine Hours
Machining	2,000	10	35,000	6,700	8,000
Assembly	2,000	20	-	13,500	-
Finishing	4,000	15	5,000	10,000	1,000
Stores	1,000	10	7,500	-	-
Maintenance	1,000	5	2,500	-	-

Service department overhead costs are apportioned on the following basis:

Department	Stores	Maintenance
Machining	40%	50%
Assembly	20%	20%
Finishing	20%	15%
Stores	-	15%
Maintenance	20%	-

Actual results for the period were:

Department	Direct Labour Hours	Machine Hours	Actual Department Overheads (£)
Machining	6,800	7,600	125,000
Assembly	13,100	-	60,500
Finishing	10,800	950	58,160

## QUESTION 1 CONTINUED

### REQUIRED

For the period:

- (a) Produce a budgeted overhead distribution table, showing the allocated and apportioned costs for the five departments. (3 marks)
- (b) Re-apportion the budgeted service department's costs to the production departments using simultaneous equations.  
(Full marks will not be awarded for other methods.) (10 marks)
- (c) Calculate a suitable overhead absorption rate for each of the production departments. (3 marks)
- (d) Calculate the over/under absorbed overhead for each of the production departments. (4 marks)
- (Total 20 marks)**

## MODEL ANSWER TO QUESTION 1

(a) **Budgeted overhead distribution table.**

	Production Departments			Service Departments	
	Machining	Assembly	Finishing	Stores	Maintenance
	£	£	£	£	£
Allocated	83,000	40,000	23,000	34,500	37,000
Building related	4,000	4,000	8,000	2,000	2,000
Labour related	2,000	4,000	3,000	2,000	1,000
Depreciation	<u>7,000</u>	<u>-</u>	<u>1,000</u>	<u>1,500</u>	<u>500</u>
	<u>96,000</u>	<u>48,000</u>	<u>35,000</u>	<u>40,000</u>	<u>40,500</u>

Workings:

Building related (based on floor area)	
e.g. Machining dept. = £20,000 x (2,000 / 10,000)	£4,000
Labour related (based on number of employees)	
e.g. Machining dept. = £12,000 x (10 / 60)	£2,000
Depreciation (based on machine value)	
e.g. Machining dept. = £10,000 x (35,000 / 50,000)	£7,000

(b) **Reapportionment of service department costs.**

Equation 1	$S = 40,000 + 0.15M$
Equation 2	$M = 40,500 + 0.20S$
Equation 2 x 5	$5M = 202,500 + S$
Rearrange Eq 1	$-0.15M = 40,000 - S$
	$4.85M = 242,500$
	$M = 50,000$
Substituting in Eq 1	$S = 40,000 + (0.15 \times 50,000)$
	$S = 47,500$

Apportionment of Stores

Machining	= 47,500 x 40%	19,000
Assembly	= 47,500 x 20%	9,500
Finishing	= 47,500 x 20%	9,500
Maintenance	= 47,500 x 20%	9,500

## MODEL ANSWER TO QUESTION 1 CONTINUED

### Apportionment of Maintenance

Machining	= 50,000 x 50%	25,000
Assembly	= 50,000 x 20%	10,000
Finishing	= 50,000 x 15%	7,500
Stores	= 50,000 x 15%	7,500

### Secondary apportionment of service departments

	Production Departments			Service Departments	
	Machining	Assembly	Finishing	Stores	Maintenance
Balance b/d	96,000	48,000	35,000	40,000	40,500
Stores	19,000	9,500	9,500	(47,500)	9,500
Maintenance	<u>25,000</u>	<u>10,000</u>	<u>7,500</u>	<u>7,500</u>	<u>(50,000)</u>
	<u>140,000</u>	<u>67,500</u>	<u>52,000</u>	<u>0</u>	<u>0</u>

### (c) Overhead absorption rates

	Machining	Assembly	Finishing
Total overheads	140,000	67,500	52,000
Direct labour hours	-	13,500	10,000
Machine hours	8,000	-	-
Rate per labour hour	-	£5.00	£5.20
		per lab/hr	per lab/hr
Rate per machine hour	£17.50	-	-
	per mach/hr		

### (d) Over/under absorbed overheads

Department	Actual m/c hours	Actual lab hours	Absorption rate/hr	Overhead absorbed(£)	Overhead incurred(£)	Over/under absorption(£)
Machining	7,600		£17.50	133,000	125,000	8,000 Over
Assembly		13,100	£5.00	65,500	60,500	5,000 Over
Finishing		10,800	£5.20	56,160	58,160	(2,000) Under

## QUESTION 2

Blue Stock Ltd maintains stock record cards that clearly show physical stock, allocated stock, amount on order and free stock.

The stock record card for one item of stock, Part Number B100, recorded the following information and balances at the beginning of month 2:

Re-order level	600 units of free stock
Re-order quantity	500 units
Physical stock	250 units
Allocated stock	110 units
Amount on order	500 units

The following transactions relating to Part Number B100 took place during month 2:

### Day

2nd	60 units allocated to job No. 21
3rd	110 units issued to job No. 16 (previously allocated)
4th	20 units issued to job No.122 (not previously allocated)
8th	Materials ordered at end of month 1 received
10th	100 units issued to job 23 (not previously allocated)
14th	80 units allocated to job 24
15th	50 units returned to supplier as faulty. Supplier agreed to replace
20th	60 units issued to job 21 (previously allocated)
26th	200 units issued to job 25 (not previously allocated)
28th	Materials ordered in month 2 received plus replacement materials returned on 15 <sup>th</sup> of month
30th	100 units issued to job 26 (not previously allocated)

### REQUIRED

- (a) Write up the detailed stock record card for Part Number B100 for month 2. (15 marks)
- (b) Briefly explain the meaning of:
- (i) Re-order level (1 mark)
  - (ii) Allocated stock (1 mark)
  - (iii) Free stock. (3 marks)

**(Total 20 marks)**

**MODEL ANSWER TO QUESTION 2**

**(a) STOCK RECORD CARD**

Stock Part Number      B100  
 Re-order level          600 units – Free Stock  
 Re-order quantity      500 units

Date	Receipts	Issues	Stock in hand	Allocated stock	Stock on order	Free
<b>Month 2</b>						
<b>1</b>			250	110	500	640
<b>2</b>			250	170	500	580
<b>2</b>			250	170	1000	1080
<b>3</b>		110	140	60	1000	1080
<b>4</b>		20	120	60	1000	1060
<b>8</b>	500		620	60	500	1060
<b>10</b>		100	520	60	500	960
<b>14</b>			520	140	500	880
<b>15</b>		50	470	140	550	880
<b>20</b>		60	410	80	550	880
<b>26</b>		200	210	80	550	680
<b>28</b>	550		760	80	0	680
<b>30</b>		100	660	80	0	580
<b>30</b>			660	80	500	1080

**(b)**

- (i) Reorder level:  
The stock level at which the business reorders more items
- (ii) Allocated stock:  
Stock reserved for or allocated to customer
- (iii) Free stock:  
Stock, on hand or on order, that is available for reservation or allocation, (or immediately issue from stock, without prior reservation, provided there is physical stock in stores).



### QUESTION 3

A company budgeted to make and sell 500 units of its single product in a period. The company uses standard costing and produced the following budgeted information on the product:

	£/unit	£/unit
Selling price		80
Direct labour (2hrs @ £8 per hour)	16	
Direct materials	28	
Fixed overheads (£12 per direct labour hour)	24	
Standard cost		<u>68</u>
Gross profit		<u>12</u>

Actual sales and costs relating to the period were as follows:

Sales volume	400 units
Revenue from sales	£34,000
Direct labour	£6,200
Direct material	£11,800
Fixed production overheads	£8,500

The following information has also been provided:

- (1) All production was sold during the period and there was no opening stock.
- (2) Actual direct labour worked was 825 hours.

### REQUIRED

- (a) Calculate the following variances for the period:
- (i) sales price
  - (ii) sales volume profit
  - (iii) total cost.
- (6 marks)
- (b) Reconcile the budgeted gross profit with the actual gross profit using the variances calculated in part (a).
- (3 marks)
- (c) Calculate the following fixed overhead variances for the period:
- (i) expenditure
  - (ii) volume
  - (iii) capacity
  - (iv) efficiency.
- (8 marks)
- (d) Distinguish between an ideal and an attainable standard.
- (3 marks)

**(Total 20 marks)**

### MODEL ANSWER TO QUESTION 3

#### (a) Sales and Cost Variances

		£
(i) Sales Price Variance	$(400 \times £80) - £34,000$	<b>2,000F</b>
(ii) Sales Volume Profit Variance	$(500 \times £12) - (400 \times £12)$	<b>1,200A</b>
(iii) Total Cost Variance	$(400 \times £68) - £26,500$	<b>700F</b>

Workings:

	£
Actual total cost	
Direct labour	6,200
Direct material	11,800
Fixed overheads	<u>8,500</u>
	<u>26,500</u>

#### (b) Profit Reconciliation

	£	£
Budgeted Gross Profit		<b>6,000</b>
Sales Price Variance	2,000F	
Sales Volume Profit Variance	1,200A	
Total Cost Variance	<u>700F</u>	
		<u>1,500F</u>
Actual Gross Profit		<b><u>7,500</u></b>

Workings:

Budgeted Gross Profit	500 units x £12 per unit	£6,000
Actual Gross Profit	£34,000 - £26,500	£7,500

#### (c) Fixed Overhead Variance

(i) Expenditure Variance	$£8,500 - (500 \times £24)$	<b>3,500F</b>
(ii) Volume Variance	$(500 - 400) \times £24$	<b>2,400A</b>
(iii) Capacity Variance	$[(500 \times 2) - 825] \times £12$	<b>2,100A</b>
(iv) Efficiency Variance	$[(400 \times 2) - 825] \times £12$	<b>300A</b>

(d)

#### **Ideal Standard**

A standard which makes no allowance for normal loss, waste and machine down time and therefore only attainable under most favourable conditions.

#### **Attainable Standard**

Standards set at a level which assumes efficient levels of operation but includes allowances for normal loss, waste and machine down time.

#### QUESTION 4

Telstar Ltd, which manufactures a single product, has prepared the following budgeted information for the next period:

Production/sales units	10,000
	£
Selling price per unit	56
Direct material	140,000
Direct labour	100,000
Production overheads	110,000
Selling and distribution overheads	70,000
Administration overheads	20,000

The following points have been revealed concerning the budget:

- (1) The budget is based on 80% utilisation of maximum capacity.
- (2) Production overheads are absorbed on a cost per unit basis based on the maximum capacity and a total cost of £120,000 at maximum capacity.
- (3) Selling and distribution overheads include a fixed element of £30,000.
- (4) Administration overheads are fixed.

#### REQUIRED

- (a) Calculate for the next period
- (i) The fixed overhead costs (5 marks)
  - (ii) The breakeven point (in units) (2 marks)
  - (iii) The margin of safety as a % of the sales (1 mark)
  - (iv) Profit at 80% capacity utilisation. (1 mark)

The company is considering reducing its selling price to £52 per unit. Market research suggests that this price reduction will generate the additional sales for the company to operate at maximum capacity.

#### REQUIRED

- (b) Assuming a selling price of £52 per unit and maximum capacity utilisation, calculate for the next period:
- (i) The breakeven point (in units) (1 mark)
  - (ii) The margin of safety as a % of sales (1 mark)
  - (iii) Profit at 100% capacity. (1 mark)
- (c) Using the graph paper provided draw on a single profit-volume chart a separate profit line for each of the following:
- (i) £56 per unit selling price (up to 80% capacity utilisation)
  - (ii) £52 per unit selling price (up to 100% capacity utilisation).

Clearly show on the chart the breakeven point for each selling price and margin of safety for each resulting output.

(8 marks)

**(Total 20 marks)**

**MODEL ANSWER TO QUESTION 4**

(a)

(i) **Fixed overhead costs**

Overhead	Total cost(£)	Fixed cost(£)	Variable cost(£)
Production	110,000	70,000	40,000
Selling and distribution	70,000	30,000	40,000
Administration	<u>20,000</u>	<u>20,000</u>	<u>-</u>
	<u>200,000</u>	<u>120,000</u>	<u>80,000</u>

Workings  
 100% Capacity Output = 10,000 / 0.8 = 12,500 units

Production overheads		Fixed	Variable
100% Capacity	120,000 =	F +	12,500 x V
80% Capacity	<u>110,000</u> =	<u>F +</u>	<u>10,000</u> x V
	<u>10,000</u> =		<u>2,500</u> x V
Variable cost V =	(10,000 / 2,500) = £4 per unit		
Fixed cost =	120,000 - (12,500 x 4)		= £70,000

(ii) **Breakeven point**

Variable cost per unit(£)			
Direct material (140,000/10,000)	14		
Direct labour (100,000/10,000)	10		
Overheads (80,000/10,000)	<u>8</u>		
	<u>32</u>		
Unit contribution (£)	56 - 32 = £24		
Breakeven point	120,000 / 24	=	5,000 units

(iii) **Margin of safety**

$$= \frac{10,000 - 5,000}{10,000} \times 100\% = 50\%$$

(iv) **Profit**

$$= (10,000 \times £24) - £120,000 = £120,000$$

(b)

(i) **Breakeven point**

Unit contribution (£)	52 - 32 = £20		
Breakeven	120,000 / 20	=	6,000 units

(ii) **Margin of safety**

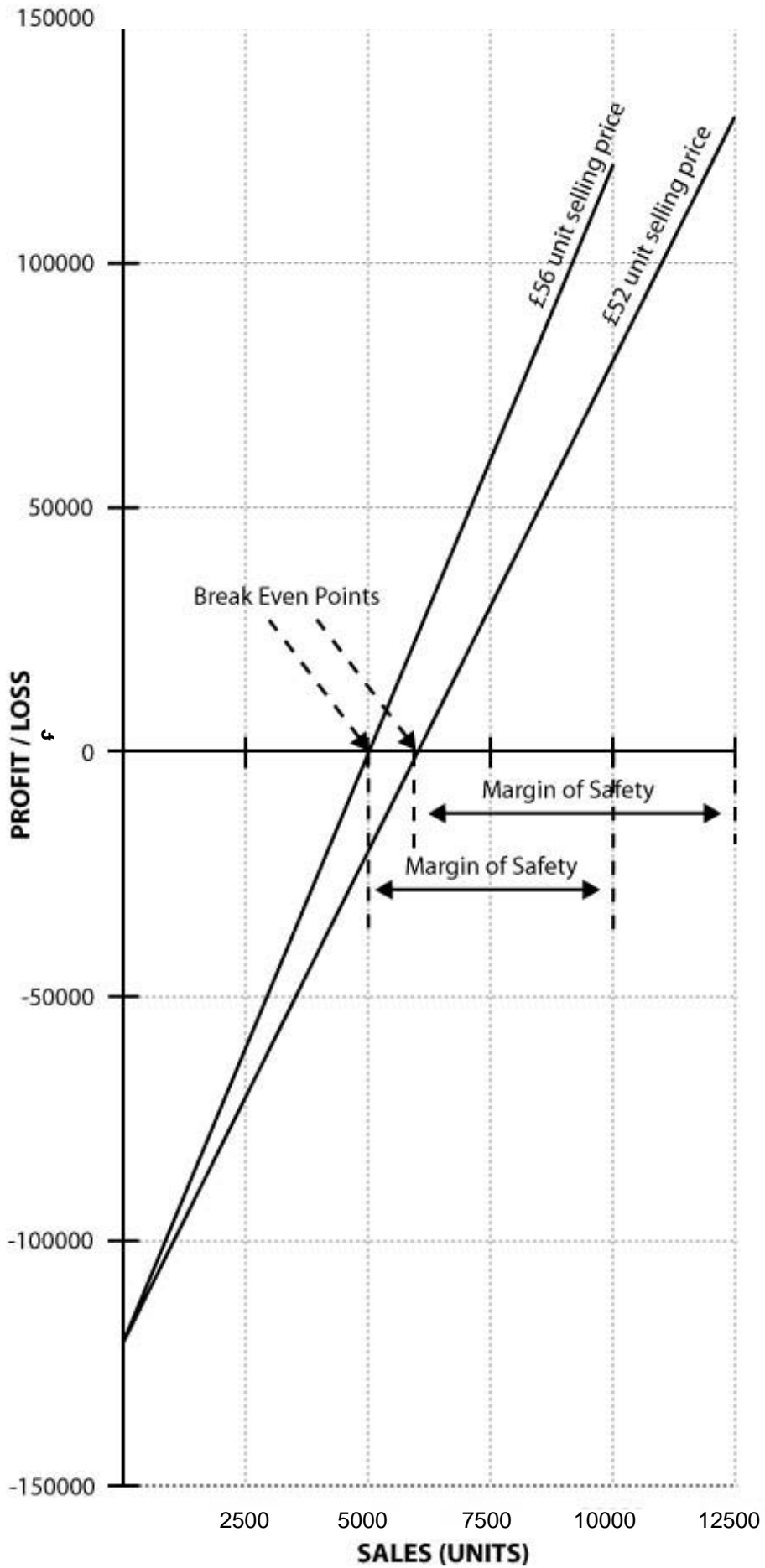
$$= \frac{12,500 - 6,000}{12,500} \times 100\% = 52\%$$

(iii) **Profit**

$$= (12,500 \times £20) - £120,000 = £130,000$$

(c) **Profit Volume Chart** (see attached chart)

PROFIT VOLUME CHART



## QUESTION 5

Twin Products Ltd manufactures two products, Aye and Bee, from a single raw material. Each product passes through two production departments, Cutting and Finishing, before final inspection. The company is in the process of preparing its budgets for month 8 and has provided the following information:

	<b>Aye</b>	<b>Bee</b>
Budgeted sales (units)-first quality	4,000	3,000
Budgeted selling price (per unit)	£10	£15
Direct labour (per batch of 100 units)		
Cutting dept (@ £8 per hour.)	8hrs	12hrs
Finishing dept (@ £10 per hour.)	4hrs	8hrs
Finished weight of completed unit	1.5 kg	3 kg

Raw material cost £3 per kg

Raw material wastage rate (Cutting dept) - 25% of input material

No raw material waste occurs in the Finishing dept

Raw material waste is sold back to the original supplier at £2 per kg

Finished product rejection rate - 20% of products inspected

Rejected products are sold, as second quality, for £5 and £8 for Aye and Bee respectively

Production overheads for month 8 (including inspection) £8,200

No stocks of finished units or work in progress are budgeted for

Stock levels of raw material are expected to be:

Month 7 (end)	3,000 kg
Month 8 (end)	2,000 kg

Assume that all waste material and second quality products that arise in the period are sold.

### REQUIRED

(a) Prepare the following budgets for month 8:

- |  |           |
|--|-----------|
| (i) Production (units of each product)                       | (3 marks) |
| (ii) Raw material usage (kg)                                 | (3 marks) |
| (iii) Raw material purchases (kg)                            | (2 marks) |
| (iv) Sale of raw material waste (kg)                         | (2 marks) |
| (v) Sale of second quality products (units of each product). | (1 mark)  |

(b) Prepare a budgeted profit statement for month 8.

(6 marks)

(c) Define, giving two examples, the term 'principal budget factor', and explain its influence on the budget setting process.

(3 marks)

**(Total 20 marks)**

**MODEL ANSWER TO QUESTION 5**

(a)

(i) **Production Budget (units)**

	<b>Aye</b>	<b>Bee</b>
Sales	4,000	3,000
Inspection loss	<u>1,000</u>	<u>750</u>
<b>Production output required</b>	<b><u>5,000</u></b>	<b><u>3,750</u></b>

Workings:

Inspection loss: Aye  $4,000 \text{ units} \times 20 / 80 = 1000 \text{ units}$   
 Bee  $3,000 \text{ units} \times 20 / 80 = 750 \text{ units}$

(ii) **Raw Material Usage Budget (kg)**

	<b>Aye</b>	<b>Bee</b>
Finished weight per unit	1.5kg	3.0kg
Input weight per unit (prior to waste)	2.0kg	4.0kg
Total input weight(raw material usage)	10,000kg	15,000kg
<b>Raw material usage</b>		<b>25,000kg</b>

Workings:

Input weight: Aye  $1.5\text{kg} \times (1.00 - 0.25) = 2\text{kg per unit}$   
 Bee  $3.0\text{kg} \times (1.00 - 0.25) = 4\text{kg per unit}$

(iii) **Raw Material Purchases Budget (kg)**

	<b>kg</b>
Raw material usage	25,000
Less opening stock of raw material	3,000
Plus closing stock of raw material	<u>2,000</u>
<b>Raw material purchases</b>	<b><u>24,000</u></b>

(iv) **Sale of raw material waste (kg)**

	<b>kg</b>
Raw material usage	25,000
Raw material waste (25% x 25,000)	<b>6,250</b>

(v) **Sale of second quality products**

	<b>Aye</b>	<b>Bee</b>
Sale of rejected products	<b>1,000 units</b>	<b>750 units</b>

## MODEL ANSWER TO QUESTION 5 CONTINUED

### (b) Profit Statement for Month 8

	£	£
Sales:		
Aye (First quality) (4,000 x £10)		40,000
Bee (First quality) (3,000 x £15)		45,000
Aye (Second quality) (1,000 x £5)		5,000
Bee (Second quality) (750 x £8)		<u>6,000</u>
		96,000
Less cost of sales		
Material	75,000	
Labour	11,800	
Overheads	<u>8,200</u>	
	95,000	
Less sale of waste	<u>12,500</u>	
		<u>82,500</u>
Gross Profit		<u>13,500</u>

#### Workings:

Material = 25,000kg x £3 per kg = £75,000

#### Labour

    Cutting dept (Aye) = 5,000 x 8hrs x £8/100 = £3,200  
                    (Bee) = 3,750 x 12hrs x £8/100 = £3,600     £6,800

    Finishing dept (Aye) = 5,000 x £4 x £10/100 = £2,000  
                    (Bee) = 3,750 x 8hrs x £10/100 = £3,000     £5,000     £11,800

- (c) The principal budget factor is the factor which restricts the activities of an organisation during the budget period. This budget must be prepared first and all other budgets will be derived from it.

Examples of principal budget factors include:

Sales  
Skilled labour  
Production/machine capacity  
Working capital



## QUESTION 6

The following balances were recorded in the cost ledger of a manufacturing company at the beginning of Month 2.

	<b>£000</b>
Raw Material Control Account	50
Finished Goods Control Account	80
Work in Progress Control Account	80
Production Overhead Control Account (over absorbed)	5
Financial Ledger Control Account	205

During Month 2 the following transactions took place

	<b>£000</b>
Raw material purchases	110
Returns to suppliers	3
Materials issued from store	120
Total factory wages	100
Indirect production expenses	55
Work completed at cost	300
Production cost of sales	280
Sales	400

## NOTES

- (i) 10% of raw material issues from stores are indirect
- (ii) 80% of factory wages are direct labour
- (iii) Factory overheads are absorbed at the rate of 110% of the direct labour wages.

## REQUIRED

- (a) Record the above transactions in the cost ledger accounts for month 2. (14 marks)
- (b) Prepare a Costing Profit & Loss Account for month 2. (1 mark)
- (c) Close the accounts at the end of Month 2 and prepare a Trial Balance. (5 marks)

**(Total 20 marks)**

## MODEL ANSWER TO QUESTION 6

(a)

### Raw Material Control Account

	£000		£000
Opening Balance	50	Financial Ledger Control	3
Financial Ledger Control	110	WIP Control	108
		Production Overhead Control	12
		Closing Balance	<u>37</u>
	<u>160</u>		<u>160</u>

### Wages Control Account

	£000		£000
Financial Ledger Control	100	WIP Control	80
		Production Overhead Control	<u>20</u>
	<u>100</u>		<u>100</u>

### Production Overhead Control Account

	£000		£000
Raw Material Control	12	Opening Balance	5
Wages Control	20	WIP Control	88
Financial Ledger Control	55		
Closing Balance	<u>6</u>		
	<u>93</u>		<u>93</u>

### Work in Progress Control Account

	£000		£000
Opening Balance	80	Finished Goods Control	300
Raw Material Control	108	Closing Balance	56
Wages Control	80		
Production Overhead Control	<u>88</u>		
	<u>356</u>		<u>356</u>

### Finished Goods Control Account

	£000		£000
Opening Balance	80	Production Cost of Sales	280
WIP Control	<u>300</u>	Closing Balance	<u>100</u>
	<u>380</u>		<u>380</u>

**MODEL ANSWER TO QUESTION 6 CONTINUED**

**Production Cost of Sales Account**

	<b>£000</b>		<b>£000</b>
Finished Goods Control	<u>280</u>	Profit/Loss	<u>280</u>
	<u>280</u>		<u>280</u>

**Sales Account**

	<b>£000</b>		<b>£000</b>
Profit/Loss	<u>400</u>	Financial Ledger Control	<u>400</u>
	<u>400</u>		<u>400</u>

**Financial Ledger Control Account**

	<b>£000</b>		<b>£000</b>
Raw Material Control	3	Opening Balance	205
Sales	400	Raw Material Control	110
Closing Balance	187	Wages Control	100
		Production Overhead Control	55
		Profit	<u>120</u>
	<u>590</u>		<u>590</u>

(b)

**Costing Profit & Loss Account**

	<b>£000</b>		<b>£000</b>
Production Cost of Sales	280	Sales	400
Profit to Financial Ledger Control	<u>120</u>		<u>400</u>
	<u>400</u>		<u>400</u>

(c)

**Trial Balance**

	<b>£000</b>		<b>£000</b>
Raw Material Control	37		
Production Overhead Control			6
Work in Progress Control	56		
Finished Goods Control	100		
Financial Ledger Control	<u>187</u>		<u>187</u>
	<u>193</u>		<u>193</u>

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