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Cost Accounting

Level 3

Model Answers

Series 4 2007 (Code 3016)

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Cost Accounting Level 3
Series 4 2007

How to use this booklet

Model Answers have been developed by Education Development International plc (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.

Cost Accounting Level 3
Series 4 2007

QUESTION 1

The Tower Hotel, which has 50 bedrooms, has organised its operations into four responsibility centres (Accommodation, Restaurant, Kitchen and Administration). The budgeted fixed overhead costs for Month 9 were as follows.

	£
Bedroom repairs	2,880
Electricity	
- accommodation	570
- restaurant	275
- kitchen	700
- administration	150
Rent	9,000
Kitchen repairs	1,025
Staff labour costs:	
- accommodation	4,800
- restaurant	6,200
- kitchen	3,000
- administration	6,000
Other property overheads	4,000

In addition, the following information relating to the responsibility centres is available:

Responsibility Centre	Floor Area Occupied (Sq metres)	Administration overhead costs apportioned on the following basis
Accommodation	600	60%
Restaurant	100	25%
Kitchen	60	15%
Administration	40	

During month 9 the hotel is to open for 30 days with a budgeted bedroom occupancy of 80%. A total of 5,600 meals is expected to be prepared and served in the kitchen and restaurant.

Actual results for month 9 were:

	Bedroom occupancy	Number of meals served / prepared	Actual overheads (Allocated and apportioned)
Cost Centre			
Accommodation	85%		£22,660
Restaurant		5700	£9,575
Kitchen		5700	£7,140

QUESTION 1 CONTINUED

REQUIRED

For month 9:

(a) Produce a budgeted overhead distribution table, showing the allocated and apportioned costs for the four responsibility centres. (Include in the table the basis for any apportionment).

(5 marks)

(b) Re-apportion the budgeted Administration costs to the other three responsibility centres.

(2 marks)

(c) Calculate a suitable overhead absorption rate for each responsibility centre.

(3 marks)

(d) Calculate the over/under absorbed overhead for each responsibility centre.

(6 marks)

(e) (i) Explain the meaning of both over-absorption and under-absorption of fixed overheads.

(ii) State two reasons for over/under absorption of fixed overheads.

(4 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 1

(a) **Overhead distribution table**

Overheads	**Basis**	**Total** (£)	**Accommodation** (£)	**Restaurant** (£)	**Kitchen** (£)	**Admin** (£)
Bedroom repairs	Allocation	2,880	2,880			
Electricity	Allocation	1,695	570	275	700	150
Rent	Apportioned (Floor Area)	9,000	6,750	1,125	675	450
Kitchen repairs	Allocation	1,025			1,025	
Staff costs	Allocation	20,000	4,800	6,200	3,000	6,000
Other property overheads	Apportioned (Floor Area)	4,000	3,000	500	300	200
		38,600	**18,000**	**8,100**	**5,700**	**6,800**

(b) **Reapportion Administration**

Administration	Apportioned		4,080	1,700	1,020	(6,800)
		38,600	**22,080**	**9,800**	**6,720**	

MODEL ANSWER TO QUESTION 1 CONTINUED

(c) **Overhead absorption rate**

Accommodation	Base on budgeted room occupancy of 80% = £22,080 / (80% x 50 x 30) **= £18.40 per room per day**
Restaurant	Based on number of meals expected to be served = £9,800 / 5,600 **= £1.75 per meal served**
Kitchen	Based on number of meals expected to be prepared = £6,720 / 5,600 **= £1.20 per meal prepared**

(d) **Over/under absorbed overheads**

Department	Accommodation	Restaurant	Kitchen
No of rooms occupied	1,275		
No of meals served/prepared		5,700	5,700
Absorption rate/room/day	£18.40		
Absorption rate/meal		£1.75	£1.20
Overhead absorbed (£)	23,460	9,975	6,840
Overhead incurred (£)	22,660	9,575	7,140
Over/under absorption(£)	800 Over	400 Over	300 Under

Workings:

No of rooms occupied = 85% x 50 x 30 = 1,275 rooms

(e) (i) Over absorption means that the overheads absorbed are greater than the overheads actually incurred.
Under absorption means that insufficient overheads have been absorbed

(ii) Actual overheads costs are different from budgeted overheads.
The actual activity level is different from the budgeted activity level.

QUESTION 2

A company, with fixed costs of £80,000 for a period, has a break-even point of £200,000 sales revenue and current sales of £400,000 for the same period.

REQUIRED

(a) Calculate the total variable cost at the break-even point and at the current sales level.

(2 marks)

(b) Calculate the contribution to sales ratio.

(2 marks)

(c) Draw a traditional breakeven chart with sales of up to £500,000 in the period. Indicate clearly on the chart the break-even point and the margin of safety at the current sales level.

(9 marks)

Assume that the contribution to sales ratio changes to 45% and the fixed costs per period increase by £1,000.

REQUIRED

(d) Calculate the revised break-even point (sales revenue).

(2 marks)

(e) Calculate the margin of safety as a percentage of the current level of sales.

(2 marks)

(f) Calculate whether profit would increase or decrease at the current sales level.

(3 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 2

(a) **Variable Costs**

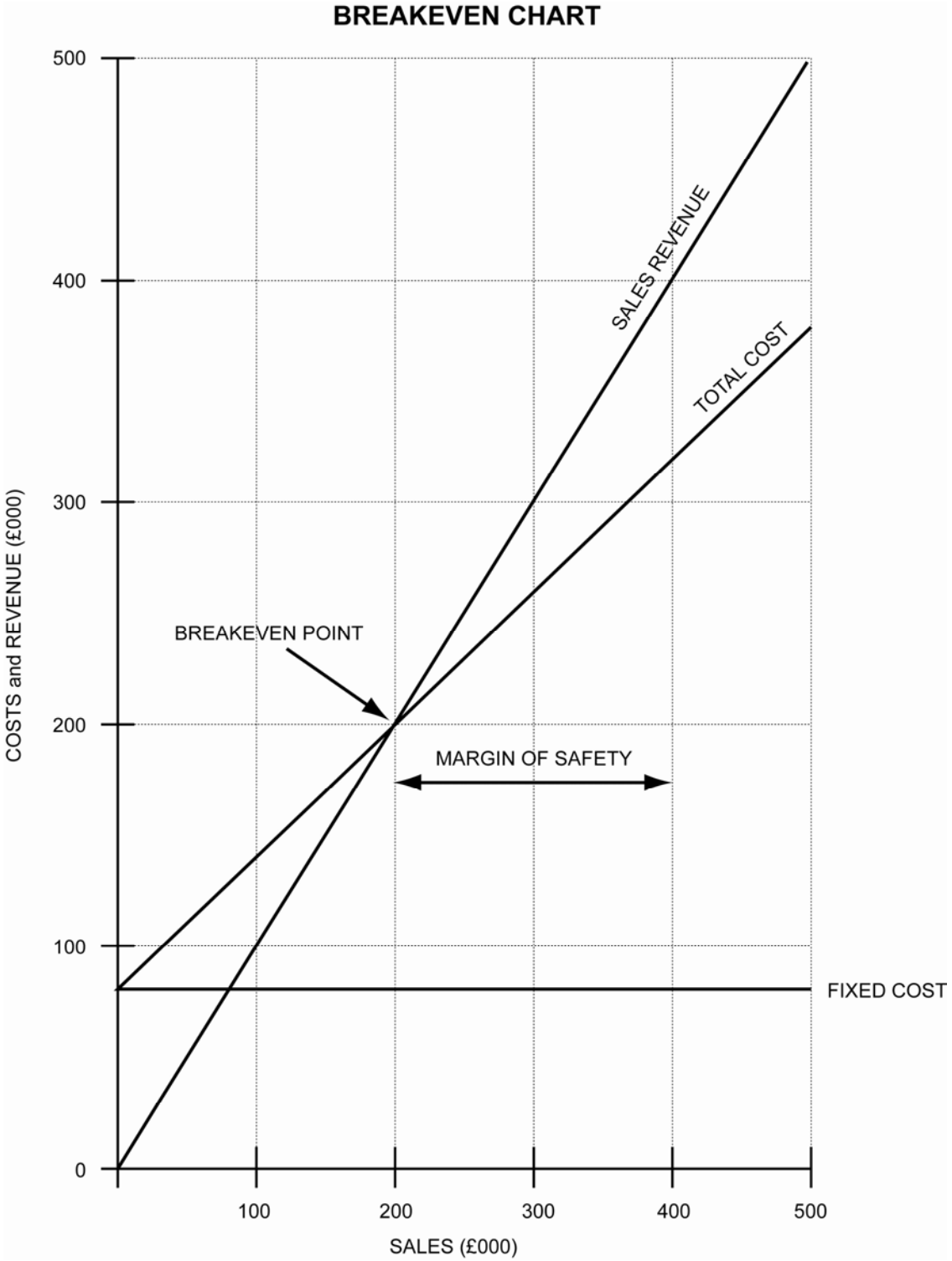
At breakeven point:
Sales revenue = Fixed cost + Variable cost.
£200,000 = £80,000 + Variable cost
Variable cost = £120,000

At current sales level of £400,000
Variable cost = £120,000 x 400,000 / 200,000
Variable cost = £240,000

(b**)** **Contribution sales ratio**

Contribution at breakeven point	=	Fixed costs
	=	£80,000
Contribution sales ratio	=	£80,000 / £200,000 x 100%
	=	**40%**
Or		
Contribution at current sales output	=	£400,000 - £240,000
	=	£160,000
Contribution sales ratio	=	£160,000 / £400,000 x 100%
	=	**40%**

(c)


BREAKEVEN CHART
500
400
300
200
100
0
COSTS and REVENUE (£000)
SALES REVENUE
TOTAL COST
BREAKEVEN POINT
MARGIN OF SAFETY
FIXED COST
100
200
300
400
500
SALES (£000)

QUESTION 2 CONTINUED

(d) **Revised breakeven point**

= Fixed costs / Contribution to sales ratio
= (£80,000 + £1,000) / 0.45
= £180,000

(e) **Margin of safety**

= [(Sales - Breakeven revenue) / Sales] x 100%
= [(400,000 - 180,000) / 400,000] x 100%
= 55%

(f) **Profits**

Current profit	=	Contribution - Fixed costs
	=	(£400,000 x 0.4) - £80,000
	=	£80,000
Revised profit	=	(£400,000 x 0.45) - £81,000
	=	£99,000

Profit would increase by £19,000

QUESTION 3

A company, which produces a single product and uses a standard costing system, has prepared the following budgeted information for month 1

Sales volume	400 units
Selling price	£75 per unit
Production	410 units
Direct material cost per unit	£5 per unit
Direct labour cost per unit	£6 per unit
Variable production overhead cost per unit	£2 per unit
Fixed production overhead cost per unit	£25 per unit

Fixed and variable overheads are absorbed at a predetermined rate based on production unit output. No stocks existed at the start of month 1

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

Sales volume	380 units
Revenue from sales	£30,400
Production	420 units
Direct material, purchased and used.	£2,310
Direct labour	£2,100
Variable production overhead	£1,050
Fixed production overhead	£10,920

REQUIRED

(a) Calculate for month 1:

(i) The budgeted gross profit
(ii) The actual gross profit.

(6 marks)

(b) Calculate the following variances:

(i) sales price
(ii) sales volume profit
(iii) total direct material
(iv) total direct labour
(v) total variable production overhead
(vi) fixed production overhead expenditure
(vii) fixed production overhead volume

(11 marks)

(c) Reconcile the budgeted gross profit with the actual gross profit using the variances calculated in part (b).

(3 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 3

(a) **Budgeted Gross profit**

(i)	Sales	(400 x £75)	£30,000
	Production costs (400 x £38)		£15,200
	Gross Profit		**£14,800**
	Workings:		
	Standard production cost per unit = (5+6+2+25)		= £38

(ii) **Actual gross profit**

Sales		£30,400
Direct material	£2,310	
Direct labour	£2,100	
Variable production overheads	£1,050	
Fixed production overheads	£10,920	
	£16,380	
Less closing stock	£1,520	
Production cost of sales		£14,860
Gross profit		**£15,540**
Workings		
Closing stock	(420 - 380) x £38 =	£1,520

(b) **Variances**

			£
(i)	Sales price	(380 x £75) - £30,400	**1,900F**
(ii)	Sales volume profit	(400 - 380) x (£14,800/400)	**740A**
(iii)	Direct material	(420 x £5) - £2,310	**210A**
(iv)	Direct labour	(420 x £6) - £2,100	**420F**
(v)	Variable overhead	(420 x £2) - £1,050	**210A**
(vi)	Fixed o/h expenditure	(410 x £25) - £10,920	**670A**
(vii)	Fixed o/h volume	(410 - 420) x £25	**250F**

(c) **Profit Reconciliation**

			£
Budgeted profit			**14,800**
Sales variances:			
Sales price	1,900F		
Sales volume profit	740A	1,160F	
Cost variances:			
Direct material	210A		
Direct labour	420F		
Variable overhead	210A		
Fixed o/h expenditure	670A		
Fixed o/h volume	250F	420A	740F
Actual profit			**15,540**

QUESTION 4

A company manufactures and sells two products, Product P and Product Q. The following information is available for periods 9 to 13 in year 2.

Sales:
The budgeted sales, in units, are as follows:

Period	**9**	**10**	**11**	**12**	**13**
Product P	800	960	1,200	1,200	1,000
Product Q	200	240	320	400	440

Raw Materials:
Two raw materials are used in the manufacture of each product.

Raw material (finished product weight)	**Product P**	**Product Q**
RM1	4kg per unit	6kg per unit
RM2	3kg per unit	4kg per unit

During manufacture, material RM1 is subject to a material input loss of 20%.

The budgeted purchase prices are £1.50 per kg for raw material RM1 and £2.00 per kg for raw material RM2. An order placed in any one period will be delivered at the start of the next period.

Stock Holding

Finished Product
A stock level for each finished product will be maintained at the end of each period equivalent to half the estimated sales for the following period. Stock level at the beginning of period 9 is expected to be 400 units for product P and 100 units for product Q.

Raw Material RM1
This material is subject to a supplier's order quantity of 12,000 kg. The company policy is to only place orders for the material when requirements for the next period's production cannot be met from stock. Stock level, at the end of period 8 is expected to be 2,450 kg. A delivery of 12,000 kg, ordered the previous period, is expected at the start of period 9.

Raw Material RM2
A stock level of 2,000 kg to be maintained at the end of each period. No minimum order quantity applies to this material. Stock level at the end of period 8 is expected to be 2,000 kg

REQUIRED

(a) Prepare the production budgets for both Product P and Product Q for periods 9 to 12.
(4 marks)

(b) Prepare the material purchases budgets (kg) for both Material RM1 and Material RM2 for each of periods 9 to 11.
(10 marks)

(c) Calculate the total budgeted value (£) of the purchases of each material over the three periods 9 to 11.
(2 marks)

(d) Define the term 'principal budget factor' and explain its influence on the budget setting process.
(4 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 4

(a)

Production Budget Product P (units)

Period	9	10	11	12	13
Sales	800	960	1,200	1,200	1,000
Less Opening Stock	400	480	600	600	
Add Closing Stock	480	600	600	500	
Production	**880**	**1,080**	**1,200**	**1,100**	

Production Budget Product Q (units)

Period	9	10	11	12	13
Sales	200	240	320	400	440
Less Opening Stock	100	120	160	200	
Add Closing Stock	120	160	200	220	
Production	**220**	**280**	**360**	**420**	

(b)

Material Purchases Budget (kgs)

Period	9	10	11	12
Material RM1 Requirement				
Product P (4kg per product)	3,520	4,320	4,800	4,400
Product Q (6kg per product)	1,320	1,680	2,160	2,520
Total without loss	4,840	6,000	6,960	6,920
Total allowing for 20% loss	6,050	7,500	8,700	8,650
Opening Stock	2,450	8,400	900	4,200
Add Delivery	12,000		12,000	12,000
Less Material requirement	6,050	7,500	8,700	8,650
Closing stock	8,400	900	4,200	7,550
Material purchases budget (RM1)		**12,000**	**12,000**	
Material RM2 Requirement				
Product P (3kg per product)	2,640	3,240	3,600	3,300
Product Q (4kg per product)	880	1,120	1,440	1,680
Total requirement	3,520	4,360	5,040	4,980
Material purchases budget (RM2)	**4,360**	**5,040**	**4,980**	

Hence purchases (orders placed) in any period will equal material requirements in the following period.

(c)

Total Value of Material Purchases (£)

Material RM1	£1.50 x (12,000 + 12,000)	**£36,000**
Material RM2	£2.00 x (4,360 + 5,040 + 4,980)	**£28,760**

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

QUESTION 5

A company manufactures and sells four products, A,B,C and D. Due to a limit on the labour capacity of 1,700 direct hours in the next period the company considers it will not be able to meet its anticipated sales demand and is therefore considering buying in some units from an outside supplier to make up any shortfall. There is no finished goods stock.

The following budgeted information has been provided for the next period.

	A	B	C	D
Sales demand (units)	400	200	250	150
Selling price per unit	£45	£60	£50	£80
Direct material (per unit)	£6	£7	£8	£10
Direct labour hours (per unit)	2	3	2	4

Direct labour is budgeted at £10 per direct labour hour.
Variable overheads are budgeted at £2 per direct labour hour.
Fixed production overheads absorbed at a rate of £10.00 per unit produced are expected to be £10,000.
An outside supplier has quoted £40, £55, £44 and £76 respectively for products A,B,C and D.

REQUIRED

(a) Advise the company on which products, and how many, it should buy in order to achieve the budgeted output at minimum cost. Support your advice with calculations.

(14 marks)

(b) Produce a budgeted manufacturing and trading account for the period.

(6 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 5

(a) Hours required to make budgeted production

Product A	400 x 2	= 800
Product B	200 x 3	= 600
Product C	250 x 2	= 500
Product D	150 x 4	= 600
		2,500

Only 1,700 direct labour hours available therefore a shortfall of 800 hours exists

Product	**A**	**B**	**C**	**D**
Variable costs (per unit)	£	£	£	£
Direct materials	6	7	8	10
Direct labour	20	30	20	40
Variable overheads	4	6	4	8
Variable cost of manufacture	30	43	32	58
Variable cost of buying	40	55	44	76
Extra variable cost of buying in	10	12	12	18
Labour hours per unit saved by buying in	2	3	2	4
Extra cost of buying in per labour hour saved	£5	£4	£6	£4.50
Buying in priority	3	1	4	2

The company should therefore buy in	Hours saved
200 units of product B	600
50 units of product D	200
	800

(b) **Manufacturing and Trading account for the period**

			£	**£**
Sales				
Product A	(400 x £45)		18,000	
Product B	(200 x £60)		12,000	
Product C	(250 x £50)		12,500	
Product D	(150 x £80)		12,000	54,500
Variable cost of manufacture				
Product A	(400 x £30)	12,000		
Product C	(250 x £32)	8,000		
Product D	(100 x £58)	5,800	25,800	
Variable cost of buying				
Product B	(200 x £55)	11,000		
Product D	(50 x £76)	3,800	14,800	
Total variable cost			40,600	
Fixed overheads			10,000	
Cost of sales				50,600
Gross profit				**3,900**

QUESTION 6

A manufacturing company operates a non-integrated accounting system. At the end of Month 1 of the financial year the following reconciliation statement was prepared.

	£	£
Profit as per cost accounts		32,000
Add:		
Finished goods closing stock difference	1,600	
Finished goods opening stock difference	2,500	
Work-in-progress closing stock difference	800	
Selling and distribution overheads over absorbed	1,000	
Notional rent charge	7,500	13,400
Deduct:		
Raw material closing stock difference	1,200	
Raw material opening stock difference	900	
Work-in-progress opening stock difference	500	
Production overheads under absorbed	2,000	
Administration overheads under absorbed	1,500	6,100
Profit as per financial accounts.		39,300

In the cost ledger, overheads are absorbed as follows:

Production overheads	£14.00 per direct labour hour
Administration overheads	8% of sales
Selling and distribution overheads	4% of sales

Any over/under absorbed overhead balance at the end of a month is carried forward to the following month in the cost ledger. Any balance remaining at the end of a financial year is transferred to the Profit and Loss Account.

Sales in Month 1 were £400,000 and 8,000 direct labour hours were worked.

In the financial ledger the following stocks relate to Month 1:

	Opening stock £	Closing stock £
Raw materials	40,000	50,000
Work-in-progress	20,000	25,000
Finished goods	150,000	120,000

REQUIRED

(a) Calculate for Month 1:

(i) The opening and closing stock values in the cost ledger for each of the raw material, work-in-progress and finished goods.

(9 marks)

(ii) The actual overhead expenditure for production, administration and selling and distributiion.

(6 marks)

(b) Suggest a reason why the cost and financial accounting valuations for raw material stock are different.

(3 marks)

(c) Explain what the item 'Notional rent charge' means.

(2 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 6

(a)

(i) **Stock values in cost ledger (£)**

	Opening stock		**Closing stock**	
Raw materials	(40,000 - 900) =	**39,100**	(50,000 + 1,200) =	**51,200**
Work-in-progress	(20,000 - 500) =	**19,500**	(25,000 - 800) =	**24,200**
Finished goods	(150,000 + 2,500) =	**152,500**	(120,000 -1,600) =	**118,400**

(ii) **Actual overhead expenditure (£)**

Production overhead:		
Absorbed	112,000	(8,000 x £14)
add under absorbed	2,000	
Incurred	**114,000**	
Administration overhead:		
Absorbed	32,000	(8% x 400,000)
add under absorbed	1,500	
Incurred	**33,500**	
Selling and distribution overhead:		
Absorbed	16,000	(4% x 400,000)
less over absorbed	1,000	
Incurred	**15,000**	

(b) **Stock valuation:**

Different methods of raw material stock valuation could be used. The financial accounts might use the 'First in first out' method whereas the cost accountant might use the 'Last in first out' method.

(c) **Notional rent charge:**

A notional rent charge represents a cost of using a resource, that is owned by the company, and has no conventional actual cost.

