



Mock Exam One

AAT L3 Management Accounting: Costing

Contents	Page
Mock practice assessment	3
Solutions to mock practice assessment	21

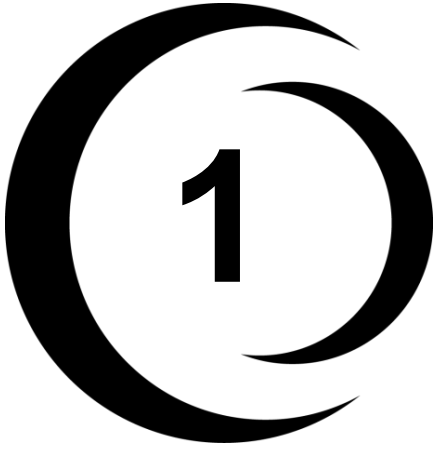
This practice assessment is one of a set of five AAT mock practice assessments which have been published for this subject. They are produced by expert AAT tutors to ensure real AAT exam style and real AAT exam standard tasks and ensure the best chance of success.

All practice assessments are relevant for the current syllabus.

Our AAT team worked extremely long hours to produce these practice assessments. Distributing our digital materials such as uploading and sharing them on social media or e-mailing them to your friends is copyright infringement.

We hope very much that you enjoy this AAT mock practice assessment and wish you the very best for your exam success!

For feedback please contact our team aatlivelearning@gmail.com



Mock Exam One

AAT L3 Management Accounting: Costing

Assessment information:

You have **2 hours and 30 minutes** to complete this practice assessment.

This assessment contains **10 tasks** and you should attempt to complete **every** task. Each task is independent. You will not need to refer to your answers to previous tasks. Read every task carefully to make sure you understand what is required.

Where the date is relevant, it is given in the task data.

Both minus signs and brackets can be used to indicate negative numbers **unless** task instructions say otherwise.

You must use a full stop to indicate a decimal point. For example, write 100.57 not 100,57 or 100 57

You may use a comma to indicate a number in the thousands, but you don't have to. For example, 10000 and 10,000 are both acceptable.

Task 1 (16 marks)

Coffee Shop RUS (CSRUS) orders different grades of coffee beans for its national high street of coffee shops.

For management accounting purposes CSRUS use the FIFO (first in, first out) method for inventory valuation.

The stores ledger records for Coffee Bean Z grade (Arabica bean) shows the following receipts into stores during October:

Date of purchase	Number of tonnes	Price per tonne (£)	Total cost (£)
1 October	80	900.00	72,000
7 October	200	920.55	184,110
14 October	150	950.00	142,500

CSRUS is considering using the AVCO (average cost method) as an alternative to the FIFO (first in, first out) method for its management accounts.

(a) Calculate the cost of issuing 150 tonnes of Bean Z Grade coffee beans to CSRUS's national chain of coffee shops on 20 October and the inventory balance after the issue using FIFO (first in, first out) and AVCO (average cost method).

(12 marks)

	Value of issue (£)	Balance after issue (£)
FIFO		
AVCO		

CSRUS is concerned about the holding cost for its coffee beans and other ingredients it stores before sale.

(b) Select which of the following statements are TRUE or FALSE.

(4 marks)

	TRUE	FALSE
Economic order quantity is an amount ordered to minimise inventory holding and ordering costs.	<input type="checkbox"/>	<input type="checkbox"/>
Buffer (safety) stock is an inventory level at which an order is placed.	<input type="checkbox"/>	<input type="checkbox"/>
The reorder level indicates that if levels fall below this amount it signals a crisis or emergency.	<input type="checkbox"/>	<input type="checkbox"/>
The inventory balance under the FIFO method will be higher than the AVCO method during a period of rising prices.	<input type="checkbox"/>	<input type="checkbox"/>

End of Task

Task 2 (16 marks)

PF is a manufacturer of pet food.

The following cost accounting codes are used in its management accounting system.

Code	Description	Code	Description
Factory 1:		Cost centres:	
2100	Direct materials	6000	Quality control
3100	Direct Labour	6100	Stores
4100	Indirect overhead	6200	Buildings maintenance
Factory 2:			
2200	Direct materials	7000	Bank
3200	Direct Labour	8000	Purchase ledger control
4200	Indirect overhead	9000	Wages control

Identify the correct cost accounting entries for each of the following FOUR transactions shown below during the week.

(16 marks)

The return of 6 bags of cement at £6 each, from buildings maintenance to stores.

(4 marks)

	Cost accounting code	£
Debit		
Credit		

The issue of 12 tonnes of beef at £1,200 per tonne to factory 1.

(4 marks)

	Cost accounting code	£
Debit		
Credit		

Posting of quality control staff wages as expenses for the week amounting to £4,722.

(4 marks)

	Cost accounting code	£
Debit		
Credit		

The return of 2 tonnes of chicken at £600 per tonne, from factory 2 to stores.

(4 marks)

	Cost accounting code	£
Debit		
Credit		

End of Task

Task 3 (12 marks)

ICS is manufacturer which makes watering cans for outdoor garden use.

The following details relate to its factory employees for the month of October:

- All employees in the factory are paid a basic rate of £8 per hour.
- Night shift workers are also paid an 'unsociable hours premium' of 25% of basic rate (overtime premium 1).
- Overtime hours worked are paid at basic rate + 20% overtime premium (overtime premium 2).
- A total of 1200 hours were worked by night shift workers which included 200 hours of overtime.

There were 6 production workers in a night shift for October. A bonus is paid to each worker of £50 for each complete percentage that actual output exceeds target. The target for the night shift was 35000 units for October and 38500 units were actually made by the 6 production workers.

(a) Complete the gaps in the table below to calculate the total labour cost for the nightshift team for October.

(6 marks)

Note: do not enter figures in grey cells.

Labour cost	Hours	£
Basic pay		
Overtime premium 1		
Overtime premium 2		
Total cost before bonus		
Bonus payment		
Total cost including bonus		

(b) Calculate the total labour cost per unit for the month of October (round your answer to 2 decimal places).

(1 mark)

The total labour cost per unit for the month of October is £

(c) Complete the following sentence.

(2 marks)

The basic pay and overtime for each team member for the month of October (to the nearest pound) was £

The bonus payable to each team member (to the nearest pound) for the month of October was £

End of Task

Task 4 (18 marks)

DXL is a courier company that offers parcel services to customers.

DXL is preparing the budget for the next quarter. The following costs are relevant.

- Indirect labour - £307,800.
- Buildings rent and rates - £800,000.
- Buildings light and heat - £100,000.
- Depreciation of non-current assets - £550,000.

Department	Carrying value of non-current assets £ million	Indirect staff costs (£)	Number of parcels handled	Number of customer calls	Number of invoices handled	Floor space (square metres)
Profit centres:						
UK Retail	20		1,000,000	5,000	700,000	1,100,000
International Retail	2		250,000	2,500	100,000	100,000
Support cost centres:						
Customer Support	3	74,500				200,000
Parcel Sorting	15	92,500				500,000
Administration	10	140,800				100,000
Total overheads to profit centres	50	307,800	1,250,000	7,500	800,000	2,000,000

Overheads are allocated or apportioned using the most appropriate basis. The total overheads of the support cost centres are then apportioned to the two profit centres using the direct method.

- Customer support costs are to be apportioned between the two profit centres on the basis of the number of customer calls handled.
- Parcel sorting costs are to be apportioned between the two profit centres on the basis of the number of parcels handled.
- Administration costs are to be apportioned between the two profit centres on the basis of the number of invoices handled.

(a) Complete the table shown below using the information given above. Enter your answers in whole pounds only. Indicate negative figures with minus signs, NOT brackets. Each white cell must have an entry in order to gain full marks. Do not enter any figures into grey cells. Insert 0 if there is no figure to enter.

(18 marks)

Picklist: Number of parcels handled, Number of customer calls, Number of invoices handled, Allocated, Floor space (m²), Carrying value of NCAs (£m).

	Basis of apportionment	Retail		Retail Support			Totals
		UK £	International £	Customer Support £	Parcel Sorting £	Administrati on £	
Indirect labour	↓						
Buildings rent and rates	↓						
Buildings light and heat	↓						
Depreciation of non-current assets	↓						
Equipment hire	↓						
Totals							
Reapportion Administration							
Reapportion Parcel Sorting							
Reapportion Customer Support							
Total overheads to profit centres							

End of Task

Task 5 (15 marks)

HTC is a manufacturer of high quality flat pack furniture which it sells to the general public.

HTC operates an absorption costing system.


Details about the budgeted cost, actual cost and activity levels for the machining department for the period is as follows:

	Budget	Actual
Machine hours	12000	12300
Production overhead (£)	120,000	128,000

(a) Calculate the budgeted overhead absorption rate for the machining department based on machine hours. Show your answers to TWO decimal places.
(2 marks)

The budgeted overhead absorption rate for the machining department is £

(b) Complete the following table using your answer in (a) and the information provided above.
(8 marks)

	Overheads incurred	Overhead absorbed	Difference absorbed	Under/over absorption
	£	£	£	<input type="text"/> 

Picklist: Under absorption, Over absorption.

The management of HTC are considering alternative methods for calculating overhead absorption rates. If the overhead absorption rate for the machining department centre had been based on direct labour hours it would be £28 per hour. The actual labour hours worked in the department was 4,700 hours for the period.

(c) Complete the following sentence.

(5 marks)

When direct labour hours are used to calculate the overhead absorption rate in the machining department, the production overhead for the machining department would be

 by £

Picklist: Under absorbed, Over absorbed.

End of Task

Task 6 (25 marks)

The following budget relates to a manufacturer which makes a single product.

The manufacturer currently uses an absorption costing system and production overhead is absorbed on a budgeted production unit basis.

The following details for month 5 are included below:

Details:	Month 5 £
Opening inventory (units)	0
Selling Price (£)	105
Production (units)	20000
Sales (units)	16000
Direct materials (£ per unit)	11.50
Direct labour (£ per unit)	5.25
Other variable production costs (£ per unit)	11.00
Fixed production costs (£)	120,000

(a) Complete the budgeted operating profit statements below for month 5, using absorption costing and marginal costing. All figures should be calculated to the nearest whole pound £. Do not use minus signs or brackets. If any answer is zero or not required, then enter '0' in the relevant cell.

(25 marks)

Marginal costing statement	Month 5 £
Sales	
Less variable cost of sales	
Opening inventory	
Production costs	
Closing inventory	
Total variable cost of sales	
Contribution	
Fixed overheads	
Profit or loss for month 5	

Absorption costing statement	Month 5 £
Sales	
Less production cost of sales	
Opening inventory	
Production variable costs	
Production fixed costs	
Closing inventory	
Total production cost of sales	
Profit or loss for month 5	

End of Task

Task 7 (16 marks)

ST makes jars of different types of strawberry jam and currently has only 6000 kilograms (kg) of strawberries available for this months production. Strawberry jam is the direct material to meet all production requirements.

The information in the table below relates to this month and includes the maximum sales demand for each type of jam made.

Fixed costs for all three products for the month are £5,000.

Per unit	Economy Jam £	Standard Jam £	Premium Jam £
Selling Price	0.69	0.99	1.99
Direct material (strawberries)	0.20	0.80	1.20
Direct Labour	0.08	0.08	0.16
Maximum sales demand (jars sold)	10000	15000	5000
Kilograms (kg) of strawberries required each jar	0.1	0.4	0.6
Strawberries required to meet maximum sales demand (kg)	1000	6000	3000

(a) Complete all cells in the forecast statement below to recommend how many units of each type of jam should be made this month.

(12 marks)

Per unit	Economy Jam	Standard Jam	Premium Jam
Contribution per unit (£). Rounded to 2.d.p.			
Kg of strawberries required each jar. Rounded to 1.d.p.			
Contribution per Kg of strawberries (£). Rounded to 2.d.p.			
Ranking			
Optimal production (jars)			

(b) Complete the following sentences, using your results in (a) above.

(4 marks)

The total contribution earned from the optimal production plan, given the shortage of strawberries for the month would be £

The amount of profit earned for the month would be £

End of Task





Task 8 (16 marks)

A manufacturer of a single product has supplied the following budgeted data below:

Direct materials	2.3 kg at £3.50 per kg.
Direct Labour	£7,000 every 8000 units made.
Depreciation of machines	£3,000 per quarter.
Repairs and maintenance	£15,000 per year plus £1.17 per unit made.

(a) Choose the correct description for each type of cost above.

(6 marks)

Cost	Type of cost
Direct materials	<input type="text"/> 
Direct Labour	<input type="text"/> 
Depreciation of machines	<input type="text"/> 
Repairs and maintenance	<input type="text"/> 

Picklist: Variable cost, Semi-variable cost, Stepped fixed cost, Fixed cost.

(b) Complete the budget shown below for the monthly cost of making 13500 units. Enter figures to the nearest whole pound £.

(10 marks)

	Monthly Production	
	18000 units £	13500 units £
Direct materials	144,900	
Direct Labour	21,000	
Depreciation of machines	1,000	
Repairs and maintenance	22,310	

End of Task

Task 9 (16 marks)

HTL Chocolate makes luxury bars of chocolate for sale to the general public.

For the first quarter of the year it had planned to manufacture 20000 batches of chocolate bars, however due to intense competition, HTL made and sold only 18500 batches for the first quarter.

All overheads are fixed.

(a) Complete the table below to show a flexed budget and the resulting variances against the budget for the first quarter of the year. Show the actual variances for sales revenue and each cost in the column headed 'Variance'.

Note:

- Adverse variances must be denoted with a minus sign or brackets.
- Enter 0 where any figure is zero.

(12 marks)

	Original Budget	Flexed Budget	Actual	Variance
Number of batches sold	20,000	18,500	18,500	
	£	£	£	£
Sales Revenue	40,000		38,850	
Less costs:				
Direct materials	16,000		17,575	
Direct labour	10,000		10,175	
Overheads	2,000		1,950	
Profit from operations	12,000		9,150	

(b) Complete the following sentences

(4 marks)

The variance that had the greatest impact in terms of decreasing profits for HTL was the

The variance that had the greatest impact in terms of increasing profits for HTL was the

Picklist: Sales revenue variance, Direct materials variance, Direct labour variance, Fixed overheads variance.

End of Task

Task 10 (20 marks)

A company is considering an investment opportunity for a new product.

Management make investment decisions for projects using three different investment appraisal methods. The financial results of a project is shown below:

	Project results	Company Policy
IRR	9.60%	Accept if more than 12%
NPV	£100,000	Accept if greater than zero
Payback	4.5 years	Maximum 2 years
Cost of capital	12%	Cost of capital used 12%

Identify the correct recommendation for each investment appraisal method shown below and your final decision, by dragging the appropriate recommendation into the table.

(20 marks)

Investment appraisal method	Recommendation
NPV	
IRR	
Payback	
Final decision	

Reject as less than the cost of capital

Accept as the most important criteria is achieved

Accept as greater than the cost of capital

Accept as positive

Accept as less than 2 years

Reject as more than 2 years

Reject as the most important criteria is not achieved

Reject as negative

End of Task



Mock Exam One - Solutions

AAT L3 Management Accounting: Costing

Task 1 (16 marks)

(a) Calculate the cost of issuing 150 tonnes of bean Z grade coffee beans to CSRUS's national chain of coffee shops on 20 October and the inventory balance after the issue using FIFO (first in, first out) and AVCO (average cost method).

(12 marks)

	Value of issue (£)	Balance after issue (£)
FIFO	136439	262171
AVCO	139050	259560

FIFO, LIFO and AVCO are used to determine the usage (issue) cost or value of closing left remaining at the end of the period. If inventory has been purchased at different prices over time, then different amounts can be charged to the profit or loss as expenses (issue cost) for the period.

FIFO

- Look at the date of each issue - THE COST OF INVENTORY ISSUED (USED) IS THE FIRST OR 'EARLIEST/OLDEST' INVENTORY THAT HAS BEEN PURCHASED FROM THE INVENTORY YOU ARE GIVEN 'IN DATE ORDER'.

On the 18 October 150 units were issued. The first (earliest in date order) you had for inventory was on 1 October, these are used (issued) first, the total value given as £72,000. Another 70 units were issued and these would be included in the purchases made on the 7 October. The price was given in the task at £920.55 per tonne, so if using only 70 of these units then use the purchase price to calculate how much this cost. 70 units x 920.55 per tonne = £64,438.50. Note the £64,439 below has been rounded to the nearest £. The total issue cost would be £136,439 if using FIFO.

1 October	80	900.00	72,000
7 October	70	920.55	64,439
Total (FIFO)	150		136,439

The balance after the issue would be any closing inventory remaining.

Date of purchase	Number of tonnes	Price per tonne	Total cost (£)
1 October	80	900.00	72,000
7 October	200	920.55	184,110
14 October	150	950.00	142,500
Total on the 14 October	430		398,610
Issue 14 October	-150		-136,439
Balance after issue	280		262,171

AVCO

- Look at the date of each issue - THE COST OF INVENTORY ISSUED (USED) IS THE 'AVERAGE PRICE' OF 'ALL INVENTORY' HELD AT THE DATE OF THE ISSUE.

To work out the average price on the 18 October, add up all units and add up all values of inventory which is held on this date. The task indicates that on the 18 October, the total value of all inventory was £398,610 and the total units 430 units held in inventory. The average price would be total value £398,610 ÷ 430 total units = an average purchase price on 18 October of £977.00.

The number of units issued was 150 units on the 18 October, so each tonne is issued at an average cost of £977.00 per tonne. 150 units x £977.00 per tonne = £139,050 issue cost. The balance of inventory remaining at the end of the period would £398,610 (the total value of inventory held on the 14 October) less the issue cost of £139,050 on the 14 October leaving a balance of £259,560.

(b) Select which of the following statements are TRUE or FALSE.

(4 marks)

	TRUE	FALSE
Economic order quantity is an amount ordered to minimise inventory holding and ordering costs.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Buffer (safety) stock is an inventory level at which an order is placed.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The reorder level indicates that if levels fall below this amount it signals a crisis or emergency.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The inventory balance under the FIFO method will be higher than the AVCO method during a period of rising prices.	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- Economic order quantity is an amount ordered to minimise inventory holding and ordering costs.
- The reorder level (not buffer or safety stock) is an inventory level at which an order is placed.
- Buffer (safety) stock (not reorder level) indicates that if levels fall below this amount it signals a crisis or emergency.
- The inventory balance under the FIFO method will be higher than the AVCO method during a period of rising prices. FIFO selects an issue using the earliest inventory you have, during periods of rising prices this should be the cheapest. If you issue at the cheapest cost then what you would have left is a higher inventory balance left at the end of the period. This was the situation in (a) above, where prices were rising in the task. A summary is provided below for all inventory valuation methods.

The three methods compared during a period of rising prices for inventory.

Rising prices	Issue Cost	Profit	Inventory Value
FIFO	Lowest	Highest	Highest
LIFO	Highest	Lowest	Lowest
AVCO	Middle	Middle	Middle

Task 2 (16 marks)

The following tutor notes may be useful for answering this task.

Coding for ledger entries require an understanding of both the double entry process and cost classification. Each organisation has its own coding structure and there is no hard or fast rules for how coding systems should be designed.

Important double entry terminology

DEAD CLIC defines what is the 'normal balance' or the natural state for a T account (general, sales or purchase ledger account).

DEAD CLIC is an acronym which gives the elements of financial statements and whether each element would be a debit or credit balance overall within a double entry ledger system. It can be used for determining the correct debit or credit balance but the element must be determined first. It can also be used to determine the correct double entry to increase or decrease an account balance.

DEAD CLIC

Debit	Credit
E xpenses	L iabilitys
A ssets	I ncome
D rawings	C apital

The elements	Natural state	Increase balance (as per the natural state)	Decrease balance (opposite to natural state)
Income	Credit	Credit	Debit
Expenses	Debit	Debit	Credit
Assets	Debit	Debit	Credit
Liabilities	Credit	Credit	Debit
Capital	Credit	Credit	Debit

A typical cost ledger system may contain the following accounts:

Statement of financial position

- Bank (**asset**).
- Purchase ledger control (**liability** to pay suppliers).
- Payroll (wages) control (**liability** to pay staff and other payroll costs).
- Stores (**asset**) holds inventory and records inventory, purchased, issued or returned production.

Statement of profit or loss

Production costs

- Direct costs (**expense**) e.g. direct materials and direct labour.
- Indirect costs (**expense**) e.g. production overheads.

Non-production costs

- Administration (**expense**).
- Selling and distribution (**expense**).

Direct costs are materials and labour specifically identified with making a product or performing a service. This would be the direct materials (raw material) and production labour (direct labour) required to make the product.

Indirect costs can be referred to as period costs, because they are expenses incurred over a period of time and not driven by any particular product made. Examples include production overhead such as depreciation of machines and factory supervisor salaries, and non-production overhead such as administration or selling and distribution expenses.

Typical entries in cost ledgers can include:

Credit settled with suppliers (bank payment)

- DR Purchase ledger control
- CR Bank

Goods purchased from suppliers (inventory)

- DR Stores (inventory)
- CR Purchase ledger control

Goods returned to suppliers (inventory)

- DR Purchase ledger control (PLCA)
- CR Stores

Goods issued by stores

- DR Direct materials or Indirect materials (overheads)
- CR Stores (inventory)

Wages paid (bank payment)

- DR Payroll (wages) control
- CR Bank

Wages expenses for the period

- DR Direct labour or Indirect labour (overheads)
- CR Payroll (wages) control

Payment of overheads (expenses) for the period

- DR Indirect overhead
- CR Bank

Code	Description	Code	Description
Factory 1:		Cost centres:	
2100	Direct materials	6000	Quality control
3100	Direct Labour	6100	Stores
4100	Indirect overhead	6200	Buildings maintenance
Factory 2:			
2200	Direct materials	7000	Bank
3200	Direct Labour	8000	Purchase ledger control
4200	Indirect overhead	9000	Wages control

The return of 6 bags of cement at £6 each, from buildings maintenance to stores.

(4 marks)

6 bags of cement at £6 each = £36. The cement is indirect material since it is not material required to make the product. All direct and indirect materials would have originally been sent from stores (an asset for inventory held). Materials are now being returned to stores by maintenance, so debit stores (increase the asset held for cement in this case) and credit buildings maintenance expenses (reducing expenses since the cement was unused).

	Cost accounting code	£
Debit	6100	36
Credit	6200	36

The issue of 12 tonnes of beef at £1,200 per tonne to factory 1.

(4 marks)

12 tonnes of beef x £1,200 a tonne = £14,400. Beef would be a direct material is specifically used to make the product, in this case pet food. Stores (an inventory asset) needs to be decreased (credited) for the inventory issued and direct material (an expense) for factory 1 increased (debited).

	Cost accounting code	£
Debit	2100	14400
Credit	6100	14400

Posting of quality control staff wages as expenses for the week amounting to £4,722.

(4 marks)

Quality control is a cost centre that incurs costs (production overhead). You need to increase quality control expenses (debit) and credit the wages control account.

	Cost accounting code	£
Debit	6000	4722
Credit	9000	4722

The return of 2 tonnes of chicken at £600 per tonne, from factory 2 to stores.

(4 marks)

2 tonnes of chicken x £600 per tonne = £1,200. Chicken would be a direct material cost since it is specifically used to make the product, in this case pet food. The direct materials would have originally been sent from stores (asset). The materials are now being returned, so debit stores (increase the asset for inventory held) and credit factory 2 (direct material costs) to reduce the expense, since materials have been returned.

	Cost accounting code	£
Debit	6100	1200
Credit	2200	1200

Task 3 (12 marks)

(a) Complete the gaps in the table below to calculate the total labour cost for the nightshift team for October.

(8 marks)

Labour cost	Hours	£
Basic pay	1200	9600
Overtime premium 1	1200	2400
Overtime premium 2	200	320
Total cost before bonus		12320
Bonus payment		3000
Total cost including bonus		15320

Bonus calculation

Target	35000
Achieved (actual output)	38500
Amount actual output exceeds target	3500

Amount actual output exceeds target,
as a percentage of target 10.00%

6 production workers x £50 for every complete % (10) = £3,000

(b) Calculate the total labour cost per unit for the month of October (round your answer to 2 decimal places).

(1 mark)

The total labour cost per unit for the month of October is **£0.40**. The total labour cost is $£15,320 \div 38500$ units made = labour cost per unit 0.397922078, rounded to 2.d.p. = £0.40 per unit.

(c) Complete the following sentence.

(3 marks)

The basic pay and overtime for each team member for the month of October (to the nearest pound) was **£2,053**. Total cost before bonus $£12,320 \div 6$ team workers = 2053.333333, rounded to the nearest whole pound £2,053. The bonus payable to each team member (to the nearest pound) for the month of October was **£500**. The bonus $£3,000$ total $\div 6$ team workers = £500 per team member.

Task 4 (18 marks)

Tutor Notes

The direct method is used to reapportion overhead that has been allocated and apportioned to support cost centres, to the profit centres. This approach ignores work done by support cost centres for other support cost centres e.g. invoice handling, parcel handling etc, overhead is reapportioned only to the profit centres. Grey cells will indicate where you can or cannot enter figures, so you will always apply the right method if you follow the direction of the question.

Figures below have answers rounded to the nearest £ as per the task instructions. Notice also that calculations when apportioning or reapportioning have a common theme, you divide an overhead (indirect cost) by the total of an activity which drives it, then you multiply by the amount of the activity for each relevant department to find each figure.

	Basis of apportionment	Retail		Retail Support			Totals
		UK £	International £	Customer Support £	Parcel Sorting £	Administration £	
Indirect labour	Allocated	0	0	74,500	92,500	140,800	307,800
Buildings rent and rates	Floor space (m ²)	440,000	40,000	80,000	200,000	40,000	800,000
Buildings light and heat	Floor space (m ²)	55,000	5,000	10,000	25,000	5,000	100,000
Depreciation of non-current assets	Carrying value of NCAs	220,000	22,000	33,000	165,000	110,000	550,000
Totals		715,000	67,000	197,500	482,500	295,800	1,757,800
Reapportion Administration		258,825	36,975			-295,800	
Reapportion Parcel Sorting		386,000	96,500		-482,500		
Reapportion Customer Support		131,667	65,833	-197,500			
Total overheads to profit centres		1,491,492	266,308				1,757,800

Indirect labour (£307,800)

Allocated since the information indicates the amounts belong to each of the support cost centres.

Buildings rent and rates (£800,000)

Buildings overhead and utilities are more likely driven by floor area since if a department uses more building space (square metres) they should be given a greater share of this budgeted indirect cost.

- UK £800,000 ÷ 2,000,000 m² x 1,100,000 m² = £440,000
- International £800,000 ÷ 2,000,000 m² x 100,000 m² = £40,000
- Customer support £800,000 ÷ 2,000,000 m² x 200,000 m² = £80,000
- Parcel handling £800,000 ÷ 2,000,000 m² x 500,000 m² = £200,000
- Administration £800,000 ÷ 2,000,000 m² x 100,000 m² = £40,000

Buildings light and heat (utilities) are more likely driven by floor area since if a department uses more building space (square metres) they should be given a greater share of this budgeted indirect cost.

Buildings light and heat (£100,000)

- UK $£100,000 \div 2,000,000 \text{ m}^2 \times 1,100,000 \text{ m}^2 = £55,000$
- International $£100,000 \div 2,000,000 \text{ m}^2 \times 100,000 \text{ m}^2 = £5,000$
- Customer support $£100,000 \div 2,000,000 \text{ m}^2 \times 200,000 \text{ m}^2 = £10,000$
- Parcel handling $£100,000 \div 2,000,000 \text{ m}^2 \times 500,000 \text{ m}^2 = £25,000$
- Administration $£100,000 \div 2,000,000 \text{ m}^2 \times 100,000 \text{ m}^2 = £5,000$

Depreciation of non-current assets (£550,000)

Depreciation (an expense charged for the wear and tear of long-term assets such as machinery), is more likely driven by the carrying value (book value) of non-current assets. For example, if a department has high value of assets, then it should share a greater proportion of depreciation overhead.

- UK $£550,000 \div £50\text{m} \times £20\text{m} = £220,000$
- International $£550,000 \div £50\text{m} \times £2\text{m} = £22,000$
- Customer support $£550,000 \div £50\text{m} \times £3\text{m} = £33,000$
- Parcel handling $£550,000 \div £50\text{m} \times £15\text{m} = £165,000$
- Administration $£550,000 \div £50\text{m} \times £10\text{m} = £110,000$

Reapportionment for Administration (£295,800)

As per task instruction reapportion to profit centres only (direct method) using the number of invoices handled.

- UK $£295,800 \div 800,000 \text{ invoices} \times 700,000 \text{ invoices} = £258,825$
- International $£295,800 \div 800,000 \text{ invoices} \times 100,000 \text{ invoices} = £36,975$

Reapportionment for Parcel Sorting (£482,500)

As per task instruction reapportion to profit centres only (direct method) using the number of parcels handled.

- UK $£482,500 \div 1,250,000 \text{ parcels} \times 1,000,000 \text{ parcels} = £386,000$
- International $£482,500 \div 1,250,000 \text{ parcels} \times 250,000 \text{ parcels} = £96,500$

Reapportionment for Customer Support (£197,500)

As per task instruction reapportion to profit centres only (direct method) using the number of customer calls.

- UK $£197,500 \div 7,500 \text{ customer calls} \times 5,000 \text{ customer calls} = £131,667$
- International $£197,500 \div 7,500 \text{ customer calls} \times 2,500 \text{ customer calls} = £65,833$

Tutor notes for the allocation, apportionment and re-apportionment of overheads:

Production cost centres are those departments which are directly engaged in the process of producing goods or delivering services to customers (retail of parcel services). Service or support cost centres are those departments which are not directly involved in the production or operations process, they provide services to production cost centres (customer support, parcel sorting and administration).

1. Budgeted indirect overhead is allocated or apportioned to cost centres at the beginning of the year – STEP 1 (examined task 4 of your AAT assessment).
2. Indirect overhead now included in service cost centres from step 1 above, is now re-apportioned to production cost centres only – STEP 2 (examined task 4 of your AAT assessment).
3. Budgeted indirect overhead now remains in production cost centres only. Budgeted overhead absorption rates can now be determined and charged to products in the accounting period using labour hours, machine hours or units produced – STEP 3 (examined task 5 of your AAT assessment).

Step 1 Allocate (giving directly to), or apportion (divide between) budgeted indirect overhead between production and service cost centres at the beginning of the year.

Apportion overheads using a fair and reasonable method, there is no hard or fast rules but look for an activity that more likely drives the overhead.

- Carrying value of assets e.g. depreciation charges.
- Market value of assets e.g. insurance expenses.
- Number of employees e.g. supervision salaries and other employee related costs.
- M^2 (floor area) e.g. buildings rent, light and heat and property expenses.
- M^3 (volume of the building) e.g. rent, light and heat and property expenses.
- Energy consumption (kilowatts) e.g. energy costs for production of goods.

Step 2 Reapportion budgeted indirect overheads from service cost centres to production cost centres only.

- Calculations are similar to the method used in step 1 above.
- Stores overheads e.g. number of material issues or the value of materials issued for the production of goods.
- Maintenance department e.g. hours worked by maintenance staff to fix machines.
- Quality control e.g. number of quality control (QC) inspections for the production of goods.
- Staff canteen e.g. number of employees.

Two methods can be applied in the exam:

- Direct method e.g. ignores any work service centres do for each other and focuses only on the work done for production centres.

- Step down method e.g. recognises work service centres do for production centres and for each other.

Grey cells will indicate where you can or cannot enter figures, so you will always apply the right method if you follow the direction of the question.

Step 3 Absorb indirect overheads from production cost centres (the only centres with overheads left) to the cost of making products during the period.

$$\text{Overhead absorption rate (OAR)} = \frac{\text{budgeted overhead}}{\text{budgeted activity (units or hours)}}$$

Activities to calculate overhead rates:

- Budgeted units (relevant if a single product, or very few types of product made)
- Budgeted labour hours (relevant if the production centres is labour intensive)
- Budgeted machine hours (relevant if the production centres is machine intensive)

Overhead absorption rates are used to charge (absorb) production overheads to the profit and loss account as expenses for the period. Whenever overheads absorbed are different to the actual expenditure on overheads for the period, an over or under absorption of production overheads will occur. This understanding is more relevant to task 5 next.

Task 5 (15 marks)

Tutor notes to help understand absorption of production overhead:

A budgeted OAR is determined at the beginning of the year and used to charge indirect production overhead from profit or cost centres, to the P&L account as expenses (overhead absorbed) for the period.

Step 1 DR Production overhead control account with actual overhead incurred during the year. CR PLCA (expenses on credit) or Bank (expenses paid cash).

Step 2 CR Production overhead absorbed (using the OAR x actual hours or actual units made in the period). DR P&L with production overhead absorbed (expenses in P&L will go up).

Step 3 At the end of the period work out if enough, or not enough overhead has been absorbed (charged to P&L). Compare the absorbed overhead charged to the P&L to the actual overhead incurred. Close the production overhead control account by posting any difference to expenses in the P&L. See examples below.

Under absorption (example 1) not enough overhead was absorbed to the P&L as expenses, close the account by transferring £2,000 under absorption (the difference). CR Production overhead control account and DR P&L (expenses go up in P&L, so profit will go down as a result of this).

Example 1 - Production overhead control account (under absorption)

	£		£
Actual overhead	20000	Overhead absorbed to P&L	
		Actual units or hours x OAR =	18000
		Under absorption to P&L	2000
	20000		20000

Over absorption (example 2) too much overhead was absorbed to the P&L as expenses, close the production overhead control account by posting the difference to expenses in the P&L. DR Production overhead control account £4,000 and CR P&L £4,000 (expenses go down in P&L, so profit will go up as a result of this).

Example 2 - Production overhead control account (over absorption)

	£		£
Actual overhead	20000	Overhead absorbed to P&L	
Over absorption to P&L	4000	Actual units or hours x OAR =	24000
	24000		24000

(a) Calculate the budgeted overhead absorption rate for the machining department based on machine hours. Show your answers to TWO decimal places.
(2 marks)

The budgeted overhead absorption rate for the machining department is **£10.00**

The OAR is always based on the budgeted overhead and budgeted activity level at the beginning of the year. $£120,000 \div 12000$ machine hours = £10.00 per machine hour used to absorb production overhead as expenses to the profit or loss account for the year.

(b) Complete the following table using your answer in (a) and the information provided above.

(8 marks)

	Overheads incurred	Overhead absorbed	Difference absorbed	Under/over absorption
	£128,000	£123,000	£5,000	Under absorption

Actual overhead 'debited' to the production overhead control account was £128,000. The amount absorbed (a 'credit') always OAR £10 x actual activity (12300 machine hours) = £123,000. Not enough expenses have been charged for the period, so an under absorption of £5,000 (£128,000 - £123,000) needs to be charged as a further expense to the profit and loss account.

A production overhead control account has been provided below to help understand the double entry logic.

Production overhead control account (under absorption)

	£		£
Actual overhead	128000	Overhead absorbed to P&L	
		(actual activity 12300 x £10 OAR)	123000
		Under absorption to P&L	5000
	128000		128000

(c) Complete the following sentence.

(5 marks)

When direct labour hours are used to calculate the overhead absorption rate in the machining department, the production overhead for the machining department would be **Over absorbed** by **£3,600**.

Actual overhead 'debited' to the production overhead control account was £128,000. The amount absorbed ('credited') would be the OAR £28 per labour hour x actual activity (4700 labour hours) = £131,600. Too much overhead has been charged for the

period, so £3,600 (£131,600 - £128,000) of expenses need to be reduced in the profit and loss account.

A production overhead control account has been provided below to help understand the double entry logic.

Production overhead control account (over absorption)

	£		£
Actual overhead	128000	Overhead absorbed to P&L	
Over absorption to P&L	3600	(actual activity 4700 Hrs x £28 OAR)	131600
	131600		131600

Task 6 (25 marks)

(a) Complete the budgeted operating profit statements below for month 5, using absorption costing and marginal costing. All figures should be calculated to the nearest whole pound £. Do not use minus signs or brackets. If any answer is zero or not required, then enter '0' in the relevant cell.

(25 marks)

The main differences between the costing systems are as follows:

- Marginal costing values inventory at variable production cost. Absorption costing values inventory at FULL production cost which includes variable and fixed production cost.
- Neither method includes non-production overheads such as finance, administration, selling and distribution expenses as part of inventory cost, such expenses are considered too remote from production (manufacturing) to include as inventory costs.
- The profit (operating) statements have different layouts, marginal costing deducts only variable costs from sales to arrive at a figure for 'contribution' (sales less all variable costs), then fixed overhead is deducted to arrive at the profit or loss.

Production cost and valuation of inventory (marginal costing)

Direct materials (£ per unit)	11.50
Direct labour (£ per unit)	5.25
Other variable production costs (£ per unit)	11.00
Total variable production cost per unit	27.75

Closing inventory valuation £27.75 x 4000 units (20000 units made less 16000 units sold) = £111,000.

Marginal costing statement	Month 5 £
Sales (£105 x 16000 units)	1,680,000
Less variable cost of sales	
Opening inventory	0
Production costs (20000 units x £27.75)	555,000
Closing inventory (4000 units x £27.75)	111,000
Total variable cost of sales	444,000
Contribution	1,236,000
Fixed overheads	120,000
Profit or loss for month 5	1,116,000

Production cost and valuation of inventory (absorption costing)

Direct materials (£ per unit)	11.50
Direct labour (£ per unit)	5.25
Other variable production costs (£ per unit)	11.00
Total variable production cost per unit	27.75
Total cost fixed cost per unit (£120,000 ÷ 20000 units production)	6.00
FULL Production cost per unit	33.75

Closing inventory valuation £33.75 x 4000 units (20000 units made less 16000 units sold) = £135,000.

Absorption costing statement	Month 5 £
Sales (£105 x 16000 units)	1,680,000
Less production cost of sales	
Opening inventory	0
Production variable costs (20000 units x £27.75)	555,000
Production fixed costs (as per task)	120,000
Closing inventory (4000 units x £33.75)	135,000
Total production cost of sales	540,000
Profit or loss for month 5	1,140,000

Task 7 (16 marks)

(a) Complete all cells in the forecast statement below to recommend how many units of each type of jam should be made this month.

(12 marks)

Per unit	Economy Jam	Standard Jam	Premium Jam
Contribution per unit (£). Rounded to 2.d.p.	0.41	0.11	0.63
Kg of strawberries required each jar. Rounded to 1.d.p.	0.1	0.4	0.6
Contribution per Kg of strawberries (£). Rounded to 2.d.p.	4.10	0.28	1.05
Ranking	1	3	2
Optimal production (jars)	10000	5000	5000

A limiting factor is a resource used for production that is limited in supply (scarce). If many types of product are made and each product uses the same limited factor e.g. raw materials, labour hours or machine hours in short supply, an optimal production plan (the best plan) can be calculated that will maximise contribution (sales - all variable costs) and therefore maximise profits, given that fixed overhead is fixed.

Limiting factor analysis is a useful management decision making tool. In such cases, you work out how much contribution each product earns for every unit of scarce resource it requires to be made. Then rank each type of product in order of its profitability. Then concentrate on making those products which earn the highest level of contribution (therefore profit) for every unit of scarce resource it requires to be made.

Limiting factor analysis decisions are made because the maximum number of all products cannot be made because a resource required to make them is in short supply. The best option in these cases is therefore to maximise contribution which in turn will maximise profit.

Optimal ('the best') product plan

	Kg
Economy (RANK 1) 10000 jars x 0.1kg =	1000
Premium (RANK 2) 5000 jars x 0.6kg =	3000
	<hr/>
Total strawberries used to make the first two products	4000
Balance (Kg) left to make Standard jam (RANK 3)	2000
	<hr/>
Maximum available	6000
	<hr/>

Standard jams require 0.4 Kg of strawberries per Jar:

Balance (Kg) left 2000 Kg ÷ 0.4Kg per jar = jars you can make 5000

Note: sales demand for standard jam is 15000 jars, only 5000 can be made.

(b) Complete the following sentences, using your results in (a) above.

(4 marks)

The total contribution earned from the optimal production plan, given the shortage of strawberries for the month would be **£7800**.

The amount of profit earned for the month would be **£2800**.

Workings:

Contribution earned:	£
Economy (RANK 1) 10000 jars x £0.41 contribution per jar	4100
Premium (RANK 2) 5000 jars x £0.63 contribution per jar	3150
Standard (RANK 3) 5000 jars x £0.11 contribution per jar	<u>550</u>
Total contribution earned	7800
Fixed overhead	<u>5000</u>
Profit	<u>2800</u>

Task 8 (16 marks)

Classification of costs by behaviour

Variable cost (VC)

- If nothing is made (zero production) you incur nothing (zero cost)
- Total VC will rise and fall with units made
- The unit VC (total variable cost ÷ units made) tends to remain constant (does not change) regardless of the number of units made

Fixed Cost (FC)

- If nothing is made (zero production) you will still incur the fixed cost
- Total FC remains constant (fixed) regardless of the number of units made.
- The unit FC (total fixed cost ÷ units made) falls as the number of units made increases (and vice versa)





Semi variable (VC + FC)

- If you make nothing you still incur the fixed cost
- The variable cost will rise and fall with units made

Fixed Cost can also be stepped in nature, when production levels go up, more resources could be required by the business and fixed costs such as rent, depreciation charges, indirect labour cost etc may increase. A stepped fixed cost will increase if you exceed a certain number of units made.

(a) Choose the correct description for each type of cost above.

(6 marks)

Cost	Type of cost
Direct materials	Variable cost 
Direct Labour	Stepped fixed cost 
Depreciation of machines	Fixed cost 
Repairs and maintenance	Semi-variable cost 

(b) Complete the budget shown below for the monthly cost of making 13500 units. Enter figures to the nearest whole pound £.

(10 marks)

Monthly Production		
	18000 units £	13500 units £
Direct materials	144,900	108,675
Direct Labour	21,000	14,000
Depreciation of machines	1,000	1,000
Repairs and maintenance	22,310	17,045

Workings:

Direct materials

2.3 Kg x £3.50 per kg x 13500 units = £108,675.

Direct Labour

£7,000 every 8000 units produced (stepped fixed cost).

From 0-8000 units, the cost would be £7,000. From 8001-16000 units, the cost would be £14,000. 13500 units falls in the range between 8001-16000 units, the cost would be £14,000.

Depreciation of machines

The budget is for one month, so £3,000 per quarter (3 months) ÷ 3 months = 1 month cost £1,000.

Repairs and maintenance

Fixed cost (£15,000 a year ÷ 12 months = £1,250) + Variable cost (£1.17 x 13500 units = £15,795) = Total cost £17,045.

Task 9 (16 marks)

(a) Complete the table below to show a flexed budget and the resulting variances against the budget for the first quarter of the year. Show the actual variances for sales revenue and each cost in the column headed 'Variance'.

Note:

- Adverse variances must be denoted with a minus sign or brackets.
- Enter 0 where any figure is zero.

(12 marks)

	Original Budget	Flexed Budget	Actual	Variance
Number of batches sold	20,000	18,500	18,500	
	£	£	£	£
Sales Revenue	40,000	37,000	38,850	1,850
Less costs:				
Direct materials	16,000	14,800	17,575	-2,775
Direct labour	10,000	9,250	10,175	-925
Overheads	2,000	2,000	1,950	50
Profit from operations	12,000	10,950	9,150	

Variance analysis is a process, which compares flexed budgeted costs and revenue to the actual costs and revenue for the same period. This information will be used to improve operational performance by control action taken by management. Variances can be either zero, adverse or favourable.

Workings

Flexed budget

- Sales revenue £40,000 ÷ 20000 batches = price £2 per batch. The flexed budget is always based on actual volume (18500 batches), so 18500 batches x £2 = £37,000.
- Direct materials £16,000 ÷ 20000 batches = £0.80 per batch. The flexed budget is always based on actual volume (18500 batches), so 18500 batches x £0.80 = £14,800.

- Direct labour $\text{£}10,000 \div 20,000 \text{ batches} = \text{£}0.50$ per batch. The flexed budget is always based on actual volume (18,500 batches), so $18,500 \text{ batches} \times \text{£}0.50 = \text{£}9,250$.
- Overheads are fixed so would be the same as the budget for 20,000 batches sold.

Variations

- Based on the same number of batches sold (18,500), actual sales revenue (income) exceeds flexed budgeted sales revenue by $\text{£}1,850$. Favourable.
- Based on the same number of batches sold (18,500), actual direct materials cost exceeds flexed budgeted direct materials by $\text{£}2,775$. Adverse.
- Based on the same number of batches sold (18,500), actual direct labour cost exceeds flexed budgeted direct labour by $\text{£}925$. Adverse.
- Based on the same number of batches sold (18,500), actual overheads cost were less than flexed budgeted overheads by $\text{£}50$. Favourable.

(b) Complete the following sentences

(4 marks)

The variance that had the greatest impact in terms of decreasing profits for HTL was the **Direct materials variance**. This was the largest adverse variance.

The variance that had the greatest impact in terms of increasing profits for HTL was the **Sales revenue variance**. This was the largest favourable variance.

Task 10 (20 marks)

Investment appraisal is the process of evaluating investment opportunities, for example, the cost of a new machine, the cash income it earns and costs that will be expended during its life-time. These types of evaluation can be over a number of years and techniques like NPV, IRR and payback exist to evaluate cash-flows for this type of situation. According to your syllabus students need to interpret the results from a capital investment appraisal. There is no mention in the syllabus of any calculations required.

Investment appraisal techniques help maximise the benefit to be gained from different investment opportunities. They help evaluate the best investments based on the project returns given.

Payback period seeks to work out how long a project will take to pay itself back from the future cash earnings it will generate. The assumption of this method is that cash is received evenly throughout each year of a projects life, this enables the payback period to be calculated to the nearest month.

Normally the company would have a target, policy or 'hurdle rate' for projects to proceed e.g. payback must be within 2.5 years. An acceptable payback period depends on the investor's requirements for example 2.5 years may be acceptable to one investor but not by another. The lower the period of time a project takes to pay itself back the better it will be for all investors.

Net present value (NPV) 'discounts' future cash flows for an investment project discounted back to today's value (the 'present value') by accounting for 'time value of money'. The present value of cash-flows for each year of the project's life are calculated using the investors required return (a 'cost of capital'). The sum of all present values of cash-flows each year for the project (positive, or negative) are added together to find the 'net' of the present values (the net present value, or 'NPV').

Both NPV (and IRR) use the principle of time value of money. Time value of money recognises that money received in the future is less valuable than money received in your hand today.

For example, £20,000 received today is more valuable than £20,000 received in 5 years' time, since an investor can invest less today to earn the £20,000 in 5 years' time. Both amounts due to different time periods of receipt are not the same value to an investor. We can therefore discount future cash-flows of projects over a number of years using an appropriate cost of capital to do it (the investors required return) and find the present value (today's value) of all future cash-flows tomorrow. Time value of money uses discount factors derived from a 'cost of capital' required from the investor.

An investment is accepted if the NPV (net present value) of the projects cash-flows are greater than zero (positive). An investment is rejected if the NPV (net present value) of

the projects cash-flows are less than zero (negative). If the NPV of a project is zero (not positive or negative) then the decision would be indifferent.

The internal rate of return (IRR) is a cost of capital that makes the net present value (NPV) of all cash flows from an investment project equal to zero. The IRR is the 'true return' of the project and similar in understanding to an annual return (%) that a bank offers on a bank account for an investor.

Normally a company would have a target or 'hurdle rate' for investments to proceed on the basis of using IRR e.g. projects proceed if IRR exceeds 12%, or in some cases where the IRR exceeds (is greater than) the company's cost of capital. You will not be required to calculate IRR but will have to interpret and advise about projects using data provided.

NPV is always 'the superior method'

Regardless of an investment's payback period or its IRR percentage, an investment should always be chosen if it produces overall a positive NPV. This is the golden rule. Any positive NPV (£) will accept a project, since the positive NPV amount indicates the project creates more wealth than the investors required return. A positive NPV is the additional wealth created over and above the investors required return (the required return is their cost of capital).

Identify the correct recommendation for each investment appraisal method shown below and your final decision, by dragging the appropriate recommendation into the table.

(20 marks)

Investment appraisal method	Recommendation
<p>NPV</p>	<p>Accept as positive</p>
<p>IRR</p>	<p>Reject as less than the cost of capital</p>
<p>Payback</p>	<p>Reject as more than 2 years</p>
<p>Final decision</p>	<p>Accept as the most important criteria is achieved</p>