Absorption Costing

4 Z Limited is a manufacturing company. It operates two production departments and two service departments. The costs are allocated to each department as follows:

	Production departments		Service departments	
	Machining	Finishing	Stores	Canteen
	$	$	$	$
Indirect labour	253 000	340 100	52 000	78 000
Other indirect overhead costs	205 000	225 000	80 000	92 000
Total indirect costs	458 000	565 100	132 000	170 000

The costs of the service departments are to be apportioned to the other departments as follows:

Canteen in proportion to the number of employees
Stores in proportion to the number of stores requisitions

The following information is available:

	Machining	Finishing	Stores	Canteen
Number of employees	5	9	3	1
Direct labour hours	15 000	40 000		
Machine hours	45 000	25 000		
Number of stores requisitions	6 300	7 200		

(a) Apportion the service department costs by completing the table.

	Machining	Finishing	Stores	Canteen
	$	$	$	$
Total indirect costs	458 000	565 100	132 000	170 000
Reapportionment of canteen costs				
Reapportionment of stores				
Total apportioned costs				

[6]

(b) Calculate, to **two** decimal places, a suitable overhead absorption rate for each of the production departments.

.....

.....

.....

.....

..... [4]

Additional information

Z Limited has been approached by a customer to quote for one of their products. This will require the following:

Direct materials 20 kilos at $5 per kilo
Direct labour 8 hours at $9 per hour

Direct labour hours and machine hours required in each department will be:

	Machining	Finishing
Direct labour	3 hours	5 hours
Machine time	2 hours	20 minutes

It is the company's policy to achieve a gross margin of 40% on all its products.

(c) Calculate the total price to quote to the customer.

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [6]

Additional information

The customer has said they will buy the goods from Z Limited, but at a price which will earn Z Limited a gross margin of 25%.

(d) Advise the directors whether or not they should accept the offer. Justify your answer.

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [5]

Additional information

Z Limited operates a second factory. It uses both direct labour hours and machine hours to absorb its factory overheads. The cost accountant has suggested that a single factory-wide overhead absorption rate should be used instead.

(e) Advise the directors whether or not they should make this change. Justify your answer.

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [5]

(f) Discuss the impact of over-absorption of overheads on the profits of a manufacturing business.

.....

.....

.....

.....

.....

.....

.....

..... [4]

[Total: 30]

4 R Limited uses absorption costing at one of its factories. This factory has two production departments: Machining and Assembly, and two service departments: Support and Canteen. Some budgeted overheads have already been apportioned for April 2022. The remaining budgeted overheads for April 2022 are as follows:

	$
Depreciation of machinery	25 000
Production departments' supervisor's wages	19 800

The following additional information is available.

1

	Production departments		Service departments	
	Machining	Assembly	Support	Canteen
Floor area (m^2)	7000	2000	400	600
Power (Kwh)	4500	1800	300	900
Machinery cost ($)	850 000	110 000	15 000	25 000
Number of employees	75	35	8	7

2 The canteen provides meals for staff in the Machining, Assembly and Support departments.

3 The Support department's overheads should be reapportioned on the basis of production departments' machinery cost.

REQUIRED

(a) Complete the following table showing the apportionment of overheads and the reapportionment of service department overheads.

	Production departments		Service departments	
	Machining	Assembly	Support	Canteen
	$	$	$	$
Overheads already apportioned	106 350	28 600	7 180	13 870
Depreciation of machinery				
Production departments' supervisor's wages				
Reapportioned Canteen				
Reapportioned Support				
Total				

[5]

Additional information

	Machining	Assembly
Direct labour hours per month	3200	2400
Machine hours per month	5600	1800

REQUIRED

(b) Calculate the overhead absorption rate for **each** production department to **two** decimal places.

Machining

.....

.....

.....

.....

Assembly

.....

.....

.....

.....

[4]

(c) State **two** reasons why overheads may be under-absorbed.

1 .....

.....

2 .....

.....

[2]

Additional information

At another factory a single product is made. This factory uses marginal costing.

The following information is available.

	$
Direct materials per unit	8.80
Direct labour per unit	10.10
Selling price per unit	27.00
Fixed costs per month	$44 000
Production capacity per month	15 000 units

The factory has been operating at below its normal capacity. However, recently demand for the company's product has increased considerably. The directors believe there is an opportunity to increase profits. They are considering two options to meet increased demand.

Option 1

1 Increase the selling price per unit by 5%.

2 Increase production to 16 000 units per month.

3 Overtime is paid at an additional $4.10 per unit.

4 Reduce monthly advertising by $2 000.

Option 2

1 Increase production capacity per month by 15% by purchasing additional machinery costing $78 000. This machinery will be depreciated at 20% per annum.

2 Selling price will remain at $27 per unit.

3 The supplier of materials currently offers a trade discount of 20%. This will increase to 30%.

4 The additional machinery will be more efficient and production will **not** require any overtime working.

REQUIRED

(d) Calculate the monthly profit to be made for each option.

(i) Option 1

.....

.....

.....

.....

.....

.....

.....

.....

.....

[5]

(ii) Option 2

.....

.....

.....

.....

.....

.....

.....

.....

.....

[5]

Additional information

The cost of the additional machinery required in Option 2 would be financed by an issue of ordinary shares.

REQUIRED

(e) Advise the directors which option they should choose. Justify your answer by considering **both** financial and non-financial factors.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

[5]

(f) **(i)** State **two** benefits of budgetary control.

1 .....

.....

2 .....

.....

[2]

(ii) State **two** limitations of budgetary control.

1 .....

.....

2 .....

.....

[2]

[Total: 30]

4 T Limited manufactures goods at two factories: Factory A and Factory B.

Factory A

Factory A has two production departments, Assembly and Finishing; and two service departments, Administration and Canteen.

Absorption costing is used at this factory.

Budgeted overheads for February 2021 have already been apportioned.

The basis for reapportioning the service department overheads is as follows:

	Production departments		Service departments	
	Assembly	Finishing	Administration	Canteen
Canteen	50%	40%	10%	-
Administration	75%	25%	-	-

REQUIRED

(a) Prepare a statement showing the reapportionment of service department overheads for February 2021.

	Production departments		Service departments	
	Assembly	Finishing	Administration	Canteen
	$	$	$	$
Overheads	83 500	70 100	28 300	15 400
Reapportionment of canteen				
Subtotal				
Reapportionment of administration				
Total overheads				

[4]

Additional information

	Assembly	Finishing
Direct labour hours per month	1700	1400
Machine hours per month	2800	900
Direct labour rate per hour	$8.40	$8.20

REQUIRED

(b) Calculate the overhead absorption rate for each production department to **two** decimal places.

Assembly department

.....

.....

.....

.....

Finishing department

.....

.....

.....

.....

[4]

Additional information

The company received an order from a customer. The following details are available:

Direct materials	$1880
Direct labour:	
Assembly department	11.5 hours
Finishing department	6.1 hours
Machine hours:	
Assembly department	5.7 hours
Finishing department	2.4 hours

The company's policy is to achieve a profit of 40% on selling price.

REQUIRED

(c) Prepare a statement to show the total selling price that T Limited will quote to the customer.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [7]

(d) State **two** possible causes of under absorption of overheads.

1 .....

.....

2 .....

.....

[2]

(e) State what is meant by

(i) allocation of overheads

.....

..... [1]

(ii) apportionment of overheads

.....

..... [1]

4 Hayden manufactures two products, Aye and Bee. The business operates two production departments, Machining and Finishing, and two service departments, Stores and Maintenance.

REQUIRED

(a) Identify **one** possible basis of apportionment that a business could use in respect of:

(i) rent and rates

.....

(ii) machinery depreciation

.....

(iii) electricity for machinery.

.....

[3]

Additional information

The following information is available.

	Machining	Finishing
Number of orders from Stores	3 200	1 800
Maintenance call-outs	160	32
Budgeted direct labour hours	6 200	19 800
Budgeted machine hours	38 600	9 400

REQUIRED

(b) Complete the following table to show the apportionment of budgeted overhead costs for the year ended 30 September 2021.

		Production departments		Service departments	
	Total $	Machining $	Finishing $	Stores $	Maintenance $
Total apportioned overheads	449 800	188 850	172 850	53 325	34 775
Re-apportion Stores					
Subtotal					
Re-apportion Maintenance					
Total overheads cost					

[4]

(c) Calculate, to **two** decimal places, an overhead absorption rate for **each** production department, using a suitable basis.

.....

.....

.....

.....

.....

.....

.....

..... [4]

Additional information

The actual results for the year ended 30 September 2021 were as follows:

	Machining	Finishing
Factory overheads	$265 800	$187 420
Direct labour hours	6 350	19 260
Machine hours	36 940	9 810

REQUIRED

(d) Calculate the over-absorption or under-absorption of overheads for **each** department for the year ended 30 September 2021.

.....

.....

.....

.....

.....

..... [4]

Additional information

The following information is available for one unit of product Aye.

Direct material	$36.20
Direct labour hours	
Machining ($8 per hour)	45 minutes
Finishing ($10 per hour)	60 minutes
Machine hours	
Machining	20 minutes
Finishing	30 minutes

During September 2021, a customer requested a quotation for supplying 200 units of Aye. Hayden required a 30% gross profit margin on the order.

REQUIRED

(e) Prepare a statement to show the **total** selling price that Hayden quoted to the customer.

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [6]

Additional information

Hayden is considering using one factory-wide overhead absorption rate rather than separate departmental overhead absorption rates.

REQUIRED

(f) Advise Hayden whether or not he should use one factory-wide absorption rate. Justify your answer.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [5]

(g) Explain **two** effects that the over-absorption of overheads may have on a business.

1 .....

.....

.....

2 .....

.....

.....

[4]

[Total: 30]

4 Cuthbert runs a manufacturing business which has two production departments and one service department. The business allocates and apportions overhead expenditure between production and service departments.

REQUIRED

(a) Explain **one** difference between overhead allocation and overhead apportionment.

.....

.....

.....

.....

[2]

(b) State what is meant by:

(i) a production department

.....

.....

.....

[1]

(ii) a service department

.....

.....

.....

[1]

Additional information

The following budgeted information has been provided.

	$
Rent	18 000
Heating and lighting	12 500
Depreciation	11 200
Employee overheads	8 300
	50 000

	Production department 1	Production department 2	Service department
Area (Square metres)	4 500	3 000	1 500
Electricity used (Kilowatt hours)	60 000	30 000	10 000
Non-current assets at net book value ($)	75 000	45 000	
Number of employees	45	25	13
Direct labour hours	4 000	1 200	
Machine hours	1 500	2 000	

Service department costs are re-apportioned on the basis of electricity used.

REQUIRED

(c) Complete the table to apportion the budgeted overheads to each department. Re-apportion the service department costs to the two production departments.

Overhead	Production department 1 $	Production department 2 $	Service department $	Total $
Rent				
Heating and lighting				
Depreciation				
Employee overheads				
Service department re-apportionment				

[8]

(d) Calculate the overhead absorption rate for both production departments using an appropriate basis. Give your answers to **two** decimal places.

Production department 1

.....

.....

.....

.....

.....

Production department 2

.....

.....

.....

.....

.....

[4]

(e) Explain the reason for the re-apportionment of the service department costs.

.....

.....

.....

.....

[2]

(f) State **three** limitations of using absorption costing.

1 .....

.....

2 .....

.....

3 .....

.....

[3]

Additional information

A customer made a request for a special order.

The manufacture of this order would require direct materials of $2 800 and direct labour of $3 200.

	Production department 1	Production department 2
Direct labour hours	80	20
Machine hours	30	100

Cuthbert wishes to achieve a profit margin of 35% on this order.

REQUIRED

(g) Calculate the price to quote for this special order.

.....

.....

.....

.....

.....

.....

.....

.....

[4]

Additional information

The customer offered $9 000 for this order.

REQUIRED

(h) Advise Cuthbert whether or not he should accept the order. Justify your answer.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

[5]

[Total: 30]

4 G Limited manufactures cakes for celebrations. The company uses absorption costing.

REQUIRED

(a) Explain **three** benefits to a business of using absorption costing.

1 .....

.....

.....

.....

2 .....

.....

.....

.....

3 .....

.....

.....

.....

[6]

Additional information

There are two production departments: baking and decoration.
There are two service departments: stores and maintenance.

Some overheads have already been allocated. The following forecast information is available for the year ending 31 December 2020.

Budgeted overheads to be apportioned

	$
Machinery depreciation	33 600
Power	45 500
Lighting and heating	18 000

	Baking department	Decoration department	Stores department	Maintenance department
Floor space (m^2)	4 100	2 300	600	200
Kilowatt hours	22 000	9 000	1 000	3 000
Machinery (net book value) ($)	33 000	10 000	4 000	9 000
Number of employees	14	29	4	5
Issues from stores	64%	24%		12%
Budgeted maintenance hours	2 500	1 800		
Budgeted machine hours	86 400	37 600		
Budgeted labour hours	26 300	51 000		

REQUIRED

(b) Complete the table to show the apportionment of overheads and the reapportionment of the service department overheads using suitable bases.

	Total	Baking department	Decoration department	Stores department	Maintenance department
	$	$	$	$	$
Budgeted overheads already allocated	57 620	38 530	14 150	2 800	2 140
Machinery depreciation	33 600				
Power	45 500				
Lighting and heating	18 000				
Total overheads	154 720				
Reapportionment of first service department overheads					
Subtotal					
Reapportionment of second service department overheads					
Total overheads					

[7]

(c) Calculate the overhead absorption rate, to **two** decimal places, for each production department using an appropriate basis.

Baking department

.....

.....

.....

.....

Decoration department

.....

.....

.....

.....

[4]

(d) State **two** possible reasons why overheads may be under absorbed.

1 .....

.....

.....

2 .....

.....

.....

4 Y Limited is a furniture manufacturer. One of the company's factories operates a system of absorption costing.

REQUIRED

(a) State **two** limitations of absorption costing.

1 .....

.....

2 .....

.....

[2]

Additional information

The factory makes kitchen tables.

There are two production departments: cutting and assembly.

The following forecast information is available for the year:

	Cutting department	Assembly department
Overheads	$68 400	$49 200
Total labour hours	13 720	15 820
Total machine hours	24 810	7 290

REQUIRED

(b) Calculate, to **two** decimal places, appropriate overhead absorption rates for **each** department.

Cutting department

.....

.....

.....

.....

Assembly department

.....

.....

.....

.....

[2]

Additional information

Each kitchen table requires the following.

Materials	4.2 kg at $4.90 per kg
Labour hours:	
cutting department	3.8 hours
assembly department	2.2 hours
Machine hours:	
cutting department	2.1 hours
assembly department	1.3 hours

All direct labour is paid at the rate of $10.50 per hour.

The selling price of a table is calculated to achieve a gross margin of 40%.

REQUIRED

(c) Calculate the selling price of a kitchen table.

.....

.....

.....

.....

.....

.....

.....

.....

..... [6]

Additional information

At the end of the year on 31 December 2019 it was discovered that overheads had been over absorbed.

REQUIRED

(d) State **two** reasons why overheads may be over absorbed in a business.

1 .....

.....

2 .....

.....

The business has two production cost centres: machining and assembly, and one service cost centre: stores.

The following budgeted information is available for the year ending 31 December 2019.

Budgeted overheads	$	Basis of apportionment
Depreciation	9 760	Non-current asset at cost
Heat and light	13 850	Kilowatt hours
Machinery maintenance	6 500	Machine hours

The following budgeted information is also available.

	Production cost centres		Service cost centre
	Machining	Assembly	Stores
Kilowatt hours	4 200	2 100	700
Non-current assets at cost ($)	91 000	28 000	21 000
Stores requisitions	375	125	
Direct labour hours	2 700	6 300	
Machine hours	13 400	3 350	

REQUIRED

(c) Complete the following table to show the apportionment of budgeted overhead costs for the year ending 31 December 2019.

	Total $	Production cost centres		Service cost centre
		Machining $	Assembly $	Stores $
Depreciation				
Heat and light				
Machinery maintenance				
Total overheads apportioned				
Re-apportionment of stores				
Total overheads cost				

[6]

(d) Calculate, to **two** decimal places, an overhead absorption rate for **each** production cost centre, using a suitable basis.

.....

.....

.....

.....

.....

.....

.....

..... [4]

Question 4 (e) is on the next page.

Additional information

On 1 April 2019 a customer asked Jessie to quote for an order of 200 units of her product. Each unit requires the following:

Direct labour	2.5 hours at $4 per hour
Direct material	3 kilos
Overheads	Machining department
	1.5 machine hours
	0.8 direct labour hours
	Assembly department
	1.0 machine hour
	2.0 direct labour hours

Jessie marks up all orders by 25%.

REQUIRED

(e) Prepare a statement to show the total selling price that Jessie will quote to the customer.

[7]

Additional information

The same customer offers to pay Jessie the quoted price less a 10% discount. Jessie's factory has spare capacity.

REQUIRED

(f) Advise Jessie whether or not she should accept the offer. Justify your answer.

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [5]

[Total: 30]

4 D Limited is a large company and operates from several sites. It uses different systems of costing for its different sites.

REQUIRED

(a) State **three** advantages to a business of using a system of absorption costing.

1 .....

.....

.....

2 .....

.....

.....

3 .....

.....

.....

[3]

Additional information

At one of its sites the company specialises in printing brochures and leaflets for local organisations. At this site it uses a system of absorption costing.

There are two production departments: Assembly and Printing and two service departments: Technical support and Personnel.

The following information is available.

	Production departments		Service departments	
	Assembly	Printing	Technical support	Personnel
Floor area (square metres)	90	70	15	5
Power (kilowatt-hours)	120	320	40	20
Replacement cost of machinery and equipment ($)	105 000	30 000	12 000	3 000
Number of employees	20	15	5	
Technical support hours	400	60		

The following budgeted overhead costs for August 2019 are still to be apportioned.

	$
Electricity	20 500
Insurance of machinery	7 500
Insurance of buildings	11 880

REQUIRED

(b) Complete the following table to show the apportionment of budgeted overhead costs for August 2019.

Apportionment of overheads

		Production departments		Service departments	
	Total $	Assembly $	Printing $	Technical support $	Personnel $
Overheads already apportioned	40 210	17 530	11 360	5020	6300
Electricity					
Insurance of machinery					
Insurance of buildings					
Total overheads apportioned					
Reapportionment of personnel overheads					
Reapportionment of technical support overheads					

[7]

Additional information

The following budgeted information is also available for August 2019.

	Assembly	Printing
Direct labour hours	3200	2000
Direct machine hours	1400	5500

REQUIRED

(c) Calculate an overhead absorption rate for **each** production department using an appropriate basis.

.....

.....

.....

.....

.....

.....

.....

..... [4]

Additional information

The company received an order for a set of brochures to be produced in August 2019. It was budgeted that this order would require the following:

Direct material and labour cost	$1330
Direct labour hours	
Assembly department	12.5 hours
Printing department	7.2 hours
Machine hours	
Assembly department	5.5 hours
Printing department	6.0 hours

The company requires a profit margin of 25% on all orders.

REQUIRED

(d) Calculate the budgeted profit on this order.

.....

.....

.....

.....

.....

.....

.....

..... [4]

Additional information

The actual time taken in each production department for this order was as follows:

	Assembly department	Printing department
Direct labour hours	11	6.5
Machine hours	6	8

REQUIRED

(e) Calculate the **total** over or under-absorption of overheads **for this order**. Clearly show in your workings over-absorption or under-absorption of overheads in **each** department.

.....

.....

.....

.....

.....

.....

.....

..... [5]

4 Aramis operates a manufacturing business. He has been advised that he should use absorption costing in his factory.

REQUIRED

(a) Explain **two** drawbacks for a business of using a budgeted overhead absorption rate.

1 .....

.....

.....

.....

2 .....

.....

.....

..... [4]

Additional information

Aramis's factory comprises three departments – drilling, finishing and maintenance. The maintenance department costs consist of maintenance engineers' wages. The manufacturing process is machine intensive. The overheads of the drilling and finishing departments are made up of allocated costs and an apportioned share of the maintenance department.

The following budgeted information for the six months ended 31 March is available.

	Drilling	Finishing	Maintenance
Allocated costs	$435 720	$748 900	$208 000
Use of maintenance	38%	62%	
Machine hours	27 530	32 270	

REQUIRED

(b) (i) Allocate the maintenance department overhead costs to the drilling and finishing departments.

.....

.....

.....

..... [2]

(ii) Calculate, to **two** decimal places, a budgeted overhead absorption rate for the drilling and finishing departments.

.....

.....

.....

..... [2]

Additional information

The following information relates to maintenance engineers' wages during the six-month period.

Total hours worked	7500
Total basic hours worked	6800

Workers are paid a basic rate of $30 per hour. Overtime is paid at 1.5 times the basic rate.

REQUIRED

(c) Calculate the total actual wages for the maintenance engineers for the six-month period.

.....

.....

.....

.....

.....

..... [3]

Additional information

In addition to the actual maintenance wages, the following **actual** information for the six months ended 31 March has been made available.

	Drilling	Finishing
Total overhead costs	$427 360	$713 630
Machine hours	25 110	31 976

REQUIRED

(d) Calculate the over or under-absorption of production overheads for **each** department for the six-month period.

[8]

4 D Limited manufactures a single product. The company has two production departments: machining and finishing. There are two service departments: stores and maintenance.

The accountant has allocated and apportioned total factory overheads to the four departments.

REQUIRED

(a) Explain the difference between allocation and apportionment of overheads.

.....

.....

.....

.....

.....

.....

.....

..... [4]

Additional information

The directors of D Limited have provided the following information:

	Machining	Finishing	Stores	Maintenance
Issues from stores	60%	30%	-	10%
Maintenance	75%	25%	-	–
Budgeted direct labour hours	22 000	52 000	-	–
Budgeted machine hours	84 000	12 000	-	–

REQUIRED

(b) Re-apportion the service departments' costs to the production departments.

	Machining $	Finishing $	Stores $	Maintenance $
Total apportioned overheads	177 255	101 150	26 585	33 010
Re-apportionment of stores				
Subtotal				
Re-apportionment of maintenance				
Total				

[4]

(c) Calculate a suitable overhead absorption rate to **two** decimal places for **each** production department.

.....

.....

.....

.....

..... [4]

(d) Explain why a business calculates separate overhead absorption rates for each production department rather than a single rate for the whole factory.

.....

.....

.....

.....

.....

..... [4]

Additional information

The company accountant has been asked to provide a quotation for a customer who requires 200 units of the company's product. The directors wish to quote a selling price which will achieve a 25% gross margin.

Budgeted cost per unit of product

Direct material	$16.00
Direct labour hours	
Machining	10 minutes at $9.60 per hour
Finishing	45 minutes at $10.80 per hour
Machine hours	
Machining	90 minutes
Finishing	20 minutes

REQUIRED

(e) Prepare a statement to show the quoted selling price of **one unit** of the product.

[6]

(f) Calculate the total amount the company would receive if the customer accepted the quoted price and then took a cash discount of 7½%.

[1]

Additional information

Although the business is successful and expanding, the directors feel that the four departments do not always appear to be working well together. The directors are planning to introduce a system of budgetary control which would initially reduce annual profits by 5%.

REQUIRED

(g) Advise the directors whether or not they should proceed with their plans. Justify your answer.

[7]

[Total: 30]

4 K Limited has two production departments. Department A produces bicycles and Department B produces scooters.

The company splits the costs of its maintenance department across the two production departments on the basis of stores requisitions.

REQUIRED

(a) (i) Name the accounting term which describes the splitting of a service department's costs based on stores requisitions.

..... [1]

(ii) Explain how the cost of direct materials is charged to each production department.

.....

..... [2]

Additional information

K Limited provided the following budgeted information for January 2018.

	Department A	Department B
Production (units)	1 000	1 200
Total production costs	$	$
Direct materials	16 000	26 000
Direct labour	18 000	21 000
Indirect materials	4 000	3 000
Maintenance department costs	4 500	7 000
Factory rent	10 000	8 000
Depreciation of factory machinery	10 500	19 000
	63 000	84 000

The selling and distribution costs for January were budgeted to be $33 000 and the administrative expenses for January were budgeted to be $66 000. These were to be split between the two departments on the basis of units produced.

The budgeted selling prices were calculated using a mark-up of 25% on **total cost**.

REQUIRED

(b) State the bases which the company may have used to split **each** of the following costs between the two departments.

(i) factory rent

..... [1]

(ii) depreciation of factory machinery

..... [1]

(c) Calculate the inventory value of **one** bicycle produced by Department A

(i) using marginal costing

.....

.....

..... [1]

(ii) using absorption costing.

.....

.....

..... [1]

(d) (i) Calculate the budgeted profit for **one** bicycle.

.....

.....

.....

..... [4]

(ii) Calculate the budgeted profit for **one** scooter.

.....

.....

.....

..... [4]

Additional information

The sales director has suggested that the company should reduce production of bicycles by 500 a month and increase production of scooters by 500 a month.

REQUIRED

(e) Advise the directors whether or not they should proceed with this suggestion. Justify your answer using **both** financial and non-financial factors.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [7]

Additional information

K Limited pays its production workers $9 an hour.

In January 2018 **actual** results for Department A showed the following.

hours worked	2 100
total overheads	$76 200

REQUIRED

(f) Calculate the overhead absorption rate per direct labour hour for Department A.

.....

.....

.....

.....

..... [3]

(g) Calculate the under-absorption or over-absorption of overheads for Department A in January 2018.

.....

.....

.....

.....

..... [5]

[Total: 30]

4 Zinan is a manufacturer and makes a single product. He currently uses marginal costing.

The following budgeted information is available for two years.

	Year 1	Year 2
	$	$
Direct labour	38 500	45 500
Direct material	24 750	29 250
Factory costs	13 750	15 250
	Units	Units
Sales	10 000	11 000
Production	11 000	13 000

The following information is also available.

1 Of the factory costs, $5500 are fixed for each year and the remainder are variable.

2 Variable cost per unit is not expected to change.

3 Fixed selling costs are $3500 for Year 1. These are expected to increase by 2% for Year 2.

4 Variable selling costs are expected to be 5% of the sales revenue for each year.

5 The selling price is $18 per unit.

6 There was no opening inventory in Year 1.

(c) Calculate the budgeted production cost **per unit** for **each** year.

.....

.....

.....

.....

.....

.....

.....

..... [2]

Additional information

Zinan is considering using absorption costing.

REQUIRED

(d) State **two** limitations of absorption costing.

1 .....

.....

.....

2 .....

.....

..... [2]

(e) Calculate the **total** budgeted profit for **each** of the two years using absorption costing.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [7]

4 SP Limited owns a hotel and a leisure centre.

The business is split into three working divisions: Accommodation, Leisure and Conferences.

The business also has one service centre: Support.

Labour, food and materials are allocated direct to the relevant division. The remaining overheads cannot be directly allocated.

The following budgeted information for the year ended 31 March 2018 is available:

	$
Rent and rates	86 000
Light and heat	48 000
Advertising	40 000
Equipment depreciation	60 000
Office costs	150 000

The following cost centre information is available.

	Accommodation	Leisure	Conferences	Support
Floor space (m^2)	25 000	4 000	10 000	1 000
Equipment value ($)	10 000	45 000	5 000	–
Number of employees	23	5	5	2
Kilowatt hours	7 000	4 000	3 000	1 000
Budgeted guest days	12 000	3 000	5 000	–

Advertising and office costs are apportioned on the basis of budgeted guest days.

REQUIRED

(a) Apportion the budgeted overheads to the four divisions using a suitable basis for each. Re-apportion the support costs to the three working divisions on the basis of guest days.

	Total $	Accommodation $	Leisure $	Conferences $	Support $
Labour cost	345 000	194 000	86 000	60 000	5 000
Food and materials	81 000	42 000	11 000	26 000	2 000
Rent and rates	86 000				
Light and heat	48 000				
Advertising	40 000				
Equipment depreciation	60 000				
Office costs	150 000				
Total apportioned overheads					
Reapportionment of Support					
Total					

[8]

(b) Calculate an overhead absorption rate to **two** decimal places, for **each** of the three working divisions based on budgeted guest days.

	Accommodation $	Leisure $	Conferences $

[3]

Additional information
The actual results for the year ended 31 March 2018 were as follows:

	Total cost ($)	Guest days
Accommodation	522 000	13 200
Leisure	215 000	3 600
Conferences	196 000	5 800

REQUIRED

(c) Calculate the under-absorption or over-absorption of overheads for each division.

	Accommodation $	Leisure $	Conferences $

[6]

Additional information

The company's policy is to charge customers a price to achieve a profit margin of 60%.

A business customer wishes to register five employees for a three day conference to include four days' accommodation, one day's leisure and three days' conference facilities for each employee.

REQUIRED

(d) Prepare a statement to calculate the price to be quoted to the customer.

.....

.....

.....

.....

.....

.....

..... [4]

Additional information

The directors have been informed that a competitor has quoted a price $600 **more** for the same conference. They are considering revising their own pricing policy to increase accommodation prices by 20%.

REQUIRED

(e) Advise the directors whether or not they should increase their accommodation prices. Give reasons for your answer.

.....

.....

.....

.....

.....

.....

.....

.....

..... [5]

Additional information

The directors provide the following information for the manufacturing part of the business:

Budgeted labour hours	26 400 hours
Budgeted machine hours	10 500 hours
Actual labour hours	22 300 hours
Actual machine hours	11 400 hours
Budgeted overheads	$445 000
Actual overheads	$420 000

REQUIRED

(h) (i) Calculate an appropriate overhead absorption rate for the business.

.....

..... [2]

(ii) Explain **one** limitation of absorption costing.

.....

.....

.....

..... [2]

[Total: 30]

Additional information

The directors of DH Limited also use absorption costing.

REQUIRED

(h) State the meaning of each of the following terms.

(i) Allocation

.....

.....

.....

..... [2]

(ii) Apportionment

.....

.....

.....

..... [2]

(iii) Absorption

.....

.....

.....

..... [2]

[Total: 30]

4 Miu owns a manufacturing business making a single product.

REQUIRED

(a) State the difference between a cost unit and a cost centre.

.....

.....

.....

.....

.....

..... [2]

(b) State the difference between a production cost centre and a service cost centre.

.....

.....

.....

.....

.....

..... [2]

Additional information

Miu currently uses marginal costing to value her inventory. The following budgeted information is available for the months of January and February:

Per unit	$
Selling price	12
Variable production cost	5

	January	February
	$	$
Fixed production overhead costs	9000	9000
Fixed administrative costs	800	800
	Units	Units
Sales	3600	5400
Production	4500	4500

There was **no** opening inventory in January.

Production is expected to be 54 000 units for the year.

Additional information

Miu is considering using absorption costing to value her inventory.

REQUIRED

(e) Calculate the production overhead absorption rate per unit.

[1]

(f) Prepare a budgeted profit statement for **each** of the two months, January and February, using **absorption costing**. Clearly show the opening and closing inventories each month.

Budgeted Profit Statement

	January		February	
	$	$	$	$

[8]

Additional information

The following information is available for another division of Y Limited. The division operates a system of absorption costing with two production departments.

	Department 1	Department 2
Budgeted overheads	$560 000	$304 000
Actual overheads	$533 000	$294 000
Budgeted labour hours	140 000 hrs	46 000 hrs
Actual labour hours	124 000 hrs	54 000 hrs
Budgeted machine hours	27 000 hrs	160 000 hrs
Actual machine hours	33 000 hrs	151 000 hrs

REQUIRED

(g) Calculate to **two** decimal places an appropriate overhead absorption rate for **each** department.

.....

.....

.....

.....

.....

..... [2]

(h) Calculate the over absorption or under absorption of overheads for **each** department.

.....

.....

.....

.....

.....

.....

.....

..... [4]

[Total: 30]

4 Anna has a manufacturing business with two production departments and two service departments. She makes circuit boards for electronic games using batch costing.

REQUIRED

(a) Explain what is meant by 'batch costing'.

.....

.....

.....

..... [2]

Additional information

The following budgeted annual data for Anna is available:

	Production departments		Service departments	
	Assembly	Machining	Stores	Canteen
Overheads	$36 000	$50 000	$6 250	$2 500
Direct labour hours	6 000	3 500	–	–
Machine hours	2 500	5 500	–	–

The following information is also available:

	Assembly	Machining	Stores
Number of orders	800	1200	–
Use of canteen	65%	25%	10%

REQUIRED

(b) Re-apportion the service departments' costs to the production departments using a suitable basis for each.

	Assembly $	Machining $	Stores $	Canteen $
Allocated overheads	36 000	50 000	6250	2500
Re-apportionment of canteen				
Subtotal				
Re-apportionment of stores				
Total				

[3]

(c) Calculate a suitable overhead absorption rate for **each** production department to **two** decimal places.

.....

.....

.....

.....

.....

..... [4]

Additional information

A typical order for a batch of 1000 circuit boards requires the following:

Direct materials	$48 000
Direct labour	
Assembly department	500 hours at $12 per hour
Machining department	300 hours at $8 per hour
Machine hours	
Assembly department	210 hours
Machining department	500 hours
Selling and administration costs	$7000

REQUIRED

(d) Calculate, to **two** decimal places, the total cost per circuit board based on a batch of 1000 units.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [6]

Additional information

Sally, a customer, asked for a quote for an order for 75 circuit boards. Anna calculates the selling price to give a profit margin of 60%.

REQUIRED

(e) Prepare a quote showing the total selling price.

[3]

Additional information

Sally considered the quoted price and has asked for a discount of 5%.

REQUIRED

(f) Advise Anna whether or not she should allow Sally the discount. Justify your answer.

[5]

4 Bruna Limited is a manufacturing company. It operates three production departments and two service departments. The costs are allocated to each department as follows:

	Production departments			Service departments	
	Machining	Assembly	Finishing	Stores	Canteen
	$	$	$	$	$
Indirect labour	253 000	290 000	340 100	52 000	78 000
Other indirect overhead costs	205 000	90 000	225 000	88 000	92 000

The service departments costs are allocated to the production departments as follows:

Stores in proportion to the number of stores requisitions
Canteen in proportion to number of employees.

The following information is available:

	Machining	Assembly	Finishing
Direct labour hours	15 000	60 000	40 000
Machine hours	45 000	30 000	25 000
Number of employees	5	6	9
Number of stores requisitions	6 300	4 500	7 200

REQUIRED

(a) Calculate, to **two** decimal places, a suitable overhead absorption rate for **each** of the **three** production departments.

[13]

Additional information

Bruna Limited has been approached by a customer to quote for one of their products. This will require the following:

Direct materials 20 kilos at $5 per kilo
Direct labour 10 hours at $9 per hour

Direct labour hours and machine hours required in each department will be:

	Machining	Assembly	Finishing
Direct labour hours	5	3	2
Machine time	2 hours	30 minutes	20 minutes

It is the company's practice to achieve a gross margin of 40% on all its products.

REQUIRED

(b) Calculate the total price to quote to the customer.

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [7]

Additional information

The directors are considering changing from departmental overhead absorption rates to one factory-wide rate.

REQUIRED

(c) Advise the directors whether or not they should make this change. Justify your answer.

.....

.....

.....

.....

.....

.....

.....

..... [4]

(d) Explain how over absorption **and** under absorption of overheads can affect the profit of a manufacturing business.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [6]

[Total: 30]

4 Rajesh is a manufacturer with a trading year end of 31 December. He currently uses absorption costing. The business operates two production cost centres and two service cost centres. Details of these cost centres and the budgeted overhead costs for the whole business for the year ended 31 December 2015 are as follows:

Overhead	$	Basis of apportionment
Depreciation	8750	Non-current assets at cost
Machinery maintenance	27000	Machine hours
Power	15370	Kilowatt hours
Rent of premises	63510	Floor area

The following information is also available:

	Production cost centres		Service cost centres	
	Machining	Assembly	Stores	Canteen
Floor area (square metres)	750	500	150	50
Kilowatt hours	3750	2500	750	250
Non-current asset at cost ($)	90000	30000	12000	8000
Stores requisitions	150	75	-	-
Staff	20	30	3	-
Direct labour hours	2300	13900	-	-
Machine hours	14100	2650	-	-

REQUIRED

(a) Apportion the overhead costs to the four cost centres and re-apportion the service cost centres costs to production cost centres using a suitable basis.

	Total	Production cost centres		Service cost centres	
		Machining	Assembly	Stores	Canteen
	$	$	$	$	$
Depreciation					
Machinery maintenance					
Power					
Rent of premises					
Re-apportionment of canteen					
Re-apportionment of stores					
Total overhead cost					

[8]

(b) Calculate suitable overhead absorption rates for **each** production cost centre correct to **two** decimal places.

[4]

Additional information

The following budgeted information is also available:

	Product A	Product B
Number of units	9400	6950
Direct costs per unit	$5.75	$8.25
Machine hours per unit	1.5	0.3
Assembly hours per unit	0.5	2.0

REQUIRED

(c) Calculate the total cost per unit of Product A and Product B.

[4]

Additional information

The actual results for the year were as follows:

	Machining	Assembly
Factory overheads	$76 750	$45 675
Direct labour hours	2 560	12 650
Machine hours	16 210	2 490

REQUIRED

(d) Calculate the over absorption or under absorption of overheads for each production cost centre.

[4]

(e) State what is meant by allocation.

[1]

(f) State what is meant by overhead costs.

[2]

(g) Explain why overhead costs are re-apportioned from service cost centres.

[2]

Additional information

Rajesh has been advised to change to a marginal costing system.

REQUIRED

(h) Advise Rajesh whether or not he should change. Justify your answer.

[5]

[Total: 30]

3 Kapoor Limited is a company which has **two** production departments, machining and finishing, and **two** service departments, maintenance and canteen. The following information is available.

The forecast overheads for the year ending 31 March 2015 were as follows.

	$
Power	32 000
Machine depreciation	28 400
Supervision	28 000
Rent and rates	26 000
Buildings insurance	11 000
Light and heat	9 000

The following additional information is available.

	Machining	Finishing	Maintenance	Canteen
Number of employees	16	24	8	–
Floor area (square metres)	12 000	14 000	3 000	1 000
Net book value of machinery ($)	140 000	25 000	13 000	2 000
Kilowatt hours	6 000	3 000	2 000	1 000
Maintenance department hours	66%	34%	–	–

REQUIRED

(a) Apportion the forecast overheads to the **four** departments and re-apportion the service departments' costs to production departments using a suitable basis for each.

	Basis	Total $	Machining $	Finishing $	Maintenance $	Canteen $
Power						
Machine depreciation						
Supervision						
Rent and rates						
Buildings insurance						
Light and heat						
Total apportioned overheads						
Reapportionment of canteen						
Subtotal						
Reapportionment of maintenance						
Total						

[10]

[Turn over

Additional information

The following information for the year is also provided.

	Machining	Finishing	Maintenance	Canteen
Budgeted machine hours	58 000	8 000	4 000	–
Budgeted direct labour hours	26 000	42 000	12 000	–

REQUIRED

(b) Calculate an appropriate overhead absorption rate for **each** production department to **two** decimal places.

.....

.....

.....

.....

..... [4]

Additional information

The actual results for the year ended 30 March 2015 were as follows.

	Machining	Finishing
Factory overheads	$82 436	$56 980
Direct labour hours	27 410	41 295
Direct machine hours	56 120	7 310

REQUIRED

(c) Calculate the under absorption or over absorption of overheads for **each** production department.

.....

.....

.....

.....

.....

.....

..... [4]

(d) State **two** reasons for the under absorption or over absorption of overheads, calculated in part **(c)**, for **each** department.

Machining reason 1 .....

.....

.....

Machining reason 2 .....

.....

.....

Finishing reason 1 .....

.....

.....

Finishing reason 2 .....

.....

..... [4]

(e) Explain why estimated figures are used to calculate overhead absorption rates.

.....

.....

.....

.....

.....

..... [3]

Additional information

Kapoor Limited produces a single component. The directors have been asked to prepare a quotation for a customer who requires 150 units of the component. Kapoor Limited requires 45% gross profit on mark-up on this order.

Product information

Direct materials	$9.40
Direct labour hours – machining	45 minutes at $8.40 per hour
Direct labour hours – finishing	20 minutes at $6.60 per hour
Machine hours – machining	30 minutes
Machine hours – finishing	10 minutes

REQUIRED

(f) Calculate the **full** invoice value of the order.

[5]

[Total: 30]

3 Highlander Limited has two production departments, Machining and Assembling, and one service department, Maintenance.

The following estimates had been made for year 1.

Annual budgeted information

	Machining	Assembling	Maintenance	Total
Number of employees	160	120	120	400
Floor area (square metres)	7 000	5 000	4 000	16 000
Power (kilowatt hours)	70 000	52 500	17 500	140 000
Direct machine hours	14 000	400	-	14 400
Direct labour hours	1 000	6 000	-	7 000
	$	$	$	$
Indirect material	300	268	320	888
Indirect wages	2 720	1 480	860	5 060
Value of machinery	52 000	48 000	-	100 000

Annual budgeted overheads

	$
Rent	12 800
Machinery depreciation	10 000
Power	7 200
Supervision of employees	6 400
Indirect materials	888
Indirect labour	5 060
Total overheads	42 348

REQUIRED

(a) Apportion the budgeted overheads to the three departments and re-apportion the maintenance department costs to the two production departments on the basis of the value of machinery.

Overhead Analysis Sheet

Overheads	Basis of Apportionment	Machining	Assembling	Maintenance	Totals
		$	$	$	$
Rent	floor area				
Machinery depreciation	value of machinery				
Power	kw hours				
Supervision of employees	number of employees				
Indirect materials	allocated				
Indirect labour	allocated				
re-apportionment of maintenance department overheads					

[10]

Additional information

The Machining department overhead absorption rate is applied on a machine hour basis.
The Assembling department overhead absorption rate is applied on a direct labour hour basis.

REQUIRED

(b) Calculate overhead absorption rates for each of the **two** production departments.
Calculations should be to **two** decimal places.

(i) Machining department

.....

.....

.....

..... [3]

(ii) Assembling department

.....

.....

.....

..... [3]

Additional information

The following information relates to Job 68 which was completed during year 1.

	Machining	Assembling
	$	$
Direct materials	3 500	100
Direct labour	500	1 400
Machine hours	100	10
Direct labour hours	20	60

REQUIRED

(c) (i) Prepare a statement to show the total cost of Job 68.
Clearly identify the prime cost and the total overhead cost.

.....

.....

.....

.....

.....

.....

.....

..... [5]

(ii) Calculate the selling price of Job 68 if the profit margin is 20% of selling price.
Round-up your answer to the nearest whole number.

.....

.....

.....

.....

.....

..... [3]

Additional information

At the end of year 1 the **estimated** cost figures were compared with the **actual** cost figures.

Machining department

Indirect wages amounted to $2020 and not the $2720 estimated.

Assembling department

Actual direct labour hours used in the department totalled 5570 hours and not the 6000 hours estimated.

REQUIRED

(d) Explain the meaning of the following terms. Illustrate your answer by reference to the additional information and, where appropriate, your answer to part **(b)**.

(i) Overhead over absorption

.....

.....

.....

.....

.....

.....

.....

.....

..... [3]

(ii) Overhead under absorption

.....

.....

.....

.....

.....

.....

.....

.....

..... [3]

[Total: 30]

3 Tellwright Limited started trading on 1 January 2015. It produced two products, the Mynor and the Hanbridge. After three months of trading the following information was available.

	Mynor	Hanbridge
Units produced	800	600
Units sold	700	400
Direct materials per unit	2 kilos at $6 per kilo	3 kilos at $5 per kilo
Direct labour per unit	4 hours at $9 per hour	4.5 hours at $10 per hour
Selling price per unit	$90	$120

REQUIRED

(a) Complete the following table to show the **total** direct cost incurred for **each** product in the three month period ended 31 March 2015.

	Mynor $	Hanbridge $
Direct materials		
Direct labour		
Total		

[4]

Additional information

In addition to the two production departments there was also a sales and administration department.

Data relating to the three departments were as follows.

	Mynor	Hanbridge	Sales and administration
Floor area (square metres)	2 500	2 000	500
Power usage (kilowatt hour)	12 000	15 000	3 000
Non-current assets (cost at start of trading)	$9 000	$8 000	$3 000

Following information is also available.

1 The factory supervisor is paid $23 600 a year. His time is spent in proportion to the direct labour hours worked in each production department.

2 The lease specifies that the rent is $50 000 a year.

3 The invoice for power used in the first three months of trading amounted to $6000.

4 Depreciation is charged at a rate of 20% per annum on cost.

5 Sales and administration costs amounted to $13 550 for the three months. These are regarded as fixed costs by the business.

6 No inventory of raw materials is kept.

7 Inventory of finished goods is valued on the basis of absorption cost.

REQUIRED

(b) Complete the following table to value inventory by allocating overhead costs across the three departments for the three months ended 31 March 2015. (Where there is no allocated cost enter a zero.)

	Total $	Mynor $	Hanbridge $	Sales and administration $
Supervisor's salary				
Rent				
Power				
Depreciation				
Sales and administration				
Total				

[7]

(c) Complete the following table to show the value of inventory of **each** product at 31 March 2015.

	Mynor $	Hanbridge $
Value per unit		
Number of units in inventory		
Total value of inventory		

[6]

Question 3(d) is on the next page.

(d) Prepare the manufacturing account for the three months ended 31 March 2015.

[6]

(e) Prepare the income statement for the three months ended 31 March 2015.

[7]

[Total: 30]

4 DP Limited is a large manufacturing and retailing company. The following information is available.

Current selling price per unit	$3.60
Current weekly sales	2 000 units
Contribution margin	45%

REQUIRED

(a) Calculate the **total** contribution that the company would earn over the four-week period.

.....

.....

.....

..... [2]

Additional information

The directors are planning to hold a four week price promotion on its most popular product.

The directors plan to reduce the selling price of the product by 20% over the whole four weeks of the promotion. They forecast that **additional** sales of the product will be 150% of the current sales.

The company will incur additional fixed costs of $6000 to run the promotion. The directors forecast that unit variable costs will remain as they currently are.

REQUIRED

(b) Calculate the **total** forecast units to be sold if the directors proceed with the promotion.

.....

.....

.....

..... [2]

(c) Calculate the **additional** profit or loss if the company proceeds with the promotion.

[7]

(d) Calculate the percentage by which current unit sales must increase for the promotion to break even.

[4]

(e) Advise the directors whether or not they should proceed with the promotion. Justify your answer using **both** financial and non-financial factors.

.....

.....

.....

.....

.....

.....

.....

.....

..... [5]

Additional information

The directors provide the following information for the manufacturing part of the business:

Budgeted labour hours	26 400 hours
Budgeted machine hours	10 500 hours
Actual labour hours	22 300 hours
Actual machine hours	11 400 hours
Budgeted overheads	$445 000
Actual overheads	$420 000

REQUIRED

(h) (i) Calculate an appropriate overhead absorption rate for the business.

.....

..... [2]

(ii) Explain **one** limitation of absorption costing.

.....

.....

.....

..... [2]

[Total: 30]

3 Chester Limited manufactures clothing. The work takes place in three production departments – cutting, sewing and finishing. In addition, the business has two service departments – stores and maintenance.

The budgeted overheads for the year ending 31 March 2014 were as follows:

	$
Indirect wages	185 400
Rent and rates	38 500
Power	32 600
Light and heat	18 800
Machine depreciation	73 700
Buildings insurance	18 200

The following information is available.

	Cutting	Sewing	Finishing	Stores	Maintenance
Number of indirect employees	3	5	3	4	5
Floor space (square metres)	5 000	6 000	3 000	3 000	4 000
Net book value of machinery ($)	86 000	64 000	12 000	-	5 000
Machine hours	40 000	50 000	4 000	-	-
Direct labour hours	84 000	22 000	56 000	-	-
Raw material issues	75%	17.5%	2.5%	-	5%

Chester Limited uses a single overhead rate to absorb all overheads on a direct labour hour basis.

REQUIRED

(a) State **one** advantage and **one** disadvantage to Chester Limited of using a single overhead absorption rate.

Advantage .....

.....

.....

Disadvantage .....

.....

.....

..... [4]

(b) Calculate, correct to **two** decimal places, the overhead absorption rate for the year ending 31 March 2014.

.....

..... [1]

Additional information

The directors of Chester Limited are considering changing the basis for recovering overheads to calculate a separate overhead absorption rate for each production department.

REQUIRED

(c) Apportion the costs to the five departments and re-apportion the service departments' costs to production departments using a suitable basis.

	Total $	Cutting $	Sewing $	Finishing $	Stores $	Maintenance $
Indirect wages						
Rent and rates						
Power						
Light and heat						
Machine depreciation						
Buildings insurance						
Reapportion stores						
Reapportion maintenance						

[10]

(d) Calculate, correct to **two** decimal places, appropriate overhead absorption rates for **each** production department.

.....

.....

.....

.....

.....

.....

..... [6]

Additional information

The actual results for the year were as follows:

	Cutting	Sewing	Finishing
Factory overheads	$168 180	$146 320	$51 870
Direct labour hours	85 200	20 950	58 140
Direct machine hours	42 330	52 450	4 280

REQUIRED

(e) Calculate the under- or over-absorption of overheads for **each** production department.

	Cutting $	Sewing $	Finishing $

[6]

[Turn over

(f) Manufacturing businesses classify costs by function. State **three** functional groups of costs.

1 .....

2 .....

3 ..... [3]

[Total: 30]

3 Aluko Limited manufactures three products for the automobile industry, BS100, BS200 and BS300.

The business is divided into four departments – machining, assembly, stores and canteen.

The following information is available for one unit of the three products.

	BS100	BS200	BS300
Direct materials	$12.60	$14.10	$18.80
Direct labour hours – machining ($7.80 per hour)	30 minutes	50 minutes	55 minutes
Direct labour hours – assembly ($6.30 per hour)	10 minutes	12 minutes	15 minutes
Machine hours – machining	20 minutes	30 minutes	30 minutes
Machine hours – assembly	5 minutes	5 minutes	10 minutes

The total estimated overhead costs for the year ended 30 June 2015 are as follows:

	$
Indirect wages	232 000
Machinery maintenance	94 000
Machinery insurance	9 020
Rent and rates	49 600
Buildings insurance	12 800
Machinery depreciation	26 600

The following information is also available.

	Machining	Assembly	Stores	Canteen
Number of indirect employees	8	16	4	2
Floor area (sq metres)	8 000	9 000	2 000	1 000
Value of machinery ($000)	290	120		
Number of orders from stores	6 300	1 300		
Budgeted labour hours	7 720	28 600		
Budgeted machine hours	46 400	3 200		
Use of canteen	30%	55%	15%	

REQUIRED

(a) Apportion the costs to the four departments and re-apportion the service departments' costs to production departments using a suitable basis.

	Total $	Machining $	Assembly $	Stores $	Canteen $
Indirect wages					
Machinery maintenance					
Machinery insurance					
Rent and rates					
Buildings insurance					
Machinery depreciation					
Reapportionment of canteen					
Reapportionment of stores					

[8]

(b) Calculate appropriate absorption rates for **each** production department correct to **two** decimal places.

.....

.....

.....

.....

.....

.....

.....

..... [4]

[Turn over

Additional information

The actual results for the year were as follows:

	Machining	**Assembly**
Factory overheads	$239 110	$192 860
Direct labour hours	8 420	28 150
Direct machine hours	49 120	3 050

REQUIRED

(c) Calculate the under or over absorption of overheads for each production department.

	Machining $	Assembly $

[4]

(d) Explain the reason for the over or under absorption of overheads calculated for **each** production department in part **(c)**.

.....

.....

.....

..... [2]

Additional information

Aluko Limited has been asked to prepare a quotation for a customer requiring 250 units of BS200. The company requires a 35% gross profit on **each** order.

REQUIRED

(e) Calculate the quoted selling price.

	$

[6]

(f) Explain the following terms in relation to overheads.

1 Allocation .....

.....

.....

.....

2 Apportionment .....

.....

.....

.....

3 Absorption .....

.....

.....

..... [6]

[Total: 30]

For Examiner's Use

3 Argon is a manufacturing business divided into three separate departments, machining, finishing and stores.

The total estimated costs for the three months ending 31 October 2013 are as follows:

	$
Depreciation of plant	6 000
Lighting and heating	4 500
Plant insurance	4 800
Rent	18 000
Supervision	25 000

The following information is available for the three departments:

	Machining	Finishing	Stores
Floor area (sq metres)	5000	4500	500
Number of employees	12	8	5
Value of plant ($000's)	86	8	2
Number of orders from Stores	3600	1480	-
Budgeted machine hours	4250	820	-
Budgeted direct labour hours	1200	4950	-

REQUIRED

(a) (i) Apportion the costs to the **three** departments using the most suitable basis. Clearly state the basis you have used.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

[5]

(ii) Re-apportion stores costs to each production department on the basis of the number of orders.

For Examiner's Use

.....

.....

.....

.....

.....

..... [5]

(b) Calculate **to two decimal places** the forecast overhead absorption rate for the machining and finishing departments for the three months ending 31 October 2013.

.....

.....

.....

.....

.....

.....

.....

..... [6]

Actual figures for the three months ended 31 October 2013 are:

For Examiner's Use

	Machining	Finishing
Direct labour hours	1 430	5 000
Machine hours	6 000	805
Overheads incurred	$48 340	$22 780

REQUIRED

(c) Calculate the amount of overhead absorbed for each production department for the **three** months ended 31 October 2013.

.....

.....

.....

.....

.....

.....

.....

..... [6]

(d) Calculate the amount of under **or** over absorption for each production department.

.....

.....

.....

.....

.....

..... [4]

(e) Explain what is meant by over and under absorption of overheads and how each will arise.

For Examiner's Use

.....

.....

.....

.....

.....

..... [4]

[Total: 30]

3 Winston Ltd had estimated the following factory indirect costs for its financial year ended 30 April 2012.

	$
Indirect wages	2 120 000
Repairs and maintenance of machinery	410 000
Rent and rates	53 000
Machinery insurance	24 000
Premises insurance	28 000
Electricity – power	48 000
Depreciation of machinery	14 000
Consumables	21 150

The company calculated a suitable overhead absorption rate for each of its two production departments using the following information.

	Production departments		Service departments	
	Machining	Assembly	Maintenance	Canteen
Machine cost ($)	617 500	332 500	–	–
Direct machine hours	202 500	22 500	–	–
Direct labour hours	55 500	314 500	–	–
Floor area (square metres)	9 000	8 000	2 000	1 000
Power usage (%)	55	35	5	5
Number of employees	70	104	16	10
Consumables ($)	9 550	9 800	550	1 250

The proportion of work done by each service department was:

	Machining	Assembly	Maintenance
Canteen (%)	35	60	5
Maintenance (%)	80	20	–

REQUIRED

For Examiner's Use

(a) Complete the following table to calculate the total overheads for **each** production cost centre.

Cost	Basis	Machining	Assembly	Maintenance	Canteen

[12]

(b) Calculate the appropriate overhead absorption rate for each production department.

Machining .....

.....

Assembly .....

..... [4]

The actual results for the year ended 30 April 2012 were as follows:

For Examiner's Use

	Machining	Assembly
Factory indirect costs ($)	1 410 000	1 312 000
Direct machine hours	195 000	21 000
Direct labour hours	57 000	318 000

REQUIRED

(c) Calculate the amount of overhead which would be over or under-absorbed by each production department.

.....

.....

.....

.....

.....

.....

..... [4]

(d) Explain how the results in **(c)** could have occurred.

.....

.....

.....

.....

.....

.....

..... [4]

(e) Explain the problems associated with using predetermined overhead absorption rates in calculating the price of a product.

For Examiner's Use

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [6]

[Total: 30]

4 Miu owns a manufacturing business making a single product.

REQUIRED

(a) State the difference between a cost unit and a cost centre.

.....

.....

.....

.....

.....

..... [2]

(b) State the difference between a production cost centre and a service cost centre.

.....

.....

.....

.....

.....

..... [2]

(c) State what is meant by contribution.

.....

.....

.....

.....

.....

..... [2]

Additional information

Miu currently uses marginal costing to value her inventory. The following budgeted information is available for the months of January and February:

Per unit	$
Selling price	12
Variable production cost	5

	January	February
	$	$
Fixed production overhead costs	9000	9000
Fixed administrative costs	800	800
	Units	Units
Sales	3600	5400
Production	4500	4500

There was **no** opening inventory in January.

Production is expected to be 54 000 units for the year.

REQUIRED

(d) Prepare a budgeted profit statement for **each** of the two months, January and February, using **marginal costing**. Clearly show the opening and closing inventories each month.

Budgeted Profit Statement

	January		February	
	$	$	$	$

[7]

Additional information

Miu is considering using absorption costing to value her inventory.

REQUIRED

(e) Calculate the production overhead absorption rate per unit.

[1]

(f) Prepare a budgeted profit statement for **each** of the two months, January and February, using **absorption costing**. Clearly show the opening and closing inventories each month.

Budgeted Profit Statement

	January		February	
	$	$	$	$

[8]

(g) Reconcile the difference in budgeted profit figures in parts **(d)** and **(f)**.

	January $	February $

[3]

(h) Advise Miu whether or not she should change from marginal costing to absorption costing. Give reasons to justify your answer.

[5]

[Total: 30]

Additional information

The following information is available for another division of Y Limited. The division operates a system of absorption costing with two production departments.

	Department 1	Department 2
Budgeted overheads	$560 000	$304 000
Actual overheads	$533 000	$294 000
Budgeted labour hours	140 000 hrs	46 000 hrs
Actual labour hours	124 000 hrs	54 000 hrs
Budgeted machine hours	27 000 hrs	160 000 hrs
Actual machine hours	33 000 hrs	151 000 hrs

REQUIRED

(g) Calculate to **two** decimal places an appropriate overhead absorption rate for **each** department.

.....

.....

.....

.....

.....

..... [2]

(h) Calculate the over absorption or under absorption of overheads for **each** department.

.....

.....

.....

.....

.....

.....

.....

..... [4]

[Total: 30]

3 Colebrook Limited manufactures one product. The following information is available.

Direct material	$3.20 per unit
Direct labour	$2.40 per unit
Selling price	$14.00 per unit
Budgeted fixed overhead	$88 000 per month
Budgeted production	16 000 units per month

The following information is available for February and March 2015.

	February	March
Actual sales (units)	13 000	17 000
Actual production (units)	15 000	15 000

There was no inventory of finished units at 1 February 2015. The actual fixed overhead cost was the same as the budgeted cost.

REQUIRED

(a) Calculate the contribution per unit.

.....

.....

..... [2]

Question 3(b) is on the next page.

(b) Prepare the income statement for **each** of the months February and March 2015 using marginal costing.

[9]

Additional information

Colebrook Limited is considering changing to absorption costing.

(c) Calculate the overhead absorption rate per unit produced.

.....

..... [1]

(d) Prepare the income statement for **each** of the months February and March 2015 using absorption costing.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [11]

[Turn over

(e) Prepare a statement reconciling the marginal costing profit with the absorption costing profit for February **only.**

.....

.....

.....

.....

..... [3]

(f) Explain why there is a difference in the profit between the two methods.

.....

.....

.....

.....

..... [4]

[Total: 30]

3 Sparkle produces one product, the Esprit. During the year ended 31 December 2013, the company produced 15 000 units of Esprit and incurred the following total costs:

	$
Direct materials	90 000
Direct labour	67 500
Variable production overhead	45 000
Fixed production overhead	60 000
Other fixed overheads	25 000

Each Esprit is sold for $26.00

There was no opening inventory of finished goods at 1 January 2013, and only 13 000 units were sold in the year ended 31 December 2013.

REQUIRED

(a) Calculate the marginal cost of producing one unit of Esprit.

.....

.....

.....

.....

.....

..... [4]

Additional information

Sparkle absorbs fixed production overheads on a unit basis. Other fixed overheads are not absorbed.

REQUIRED

(b) Calculate the cost of producing one unit using absorption costing.

.....

.....

.....

.....

.....

..... [5]

(c) Calculate the profit for the year ended 31 December 2013 if Sparkle values inventory on a marginal cost basis.

.....

.....

.....

.....

.....

..... [6]

(d) Calculate the profit for the year ended 31 December 2013 if Sparkle values inventory on an absorption cost basis.

.....

.....

.....

.....

.....

.....

..... [5]

(e) Prepare a statement reconciling the profit from **3(c)** with your profit from **3(d)**.

.....

.....

.....

.....

.....

..... [2]

(f) Explain the reason why valuing inventory on a marginal cost basis produces a different profit figure than valuing it on an absorption cost basis.

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [4]

Additional information

The directors of Sparkle have discovered that $7 500 fixed production overhead was incorrectly analysed as direct materials.

REQUIRED

(g) Explain the effect that this error will have on contribution and profit when using marginal costing.

.....

.....

.....

..... [4]

[Total: 30]

3 KC Global Limited provides the following budgeted information.

	January 2015	February 2015
Production	10 000 units	10 000 units
Sales	7 000 units	13 000 units
Production costs per unit:		
Direct materials	$4.50	$4.50
Direct labour	$6.00	$6.00
Variable overheads	$2.50	$2.50

Additional information

1 The budgeted selling price per unit is $17.

2 Budgeted production for the year is 120 000 units spread equally over the year.

3 There is no opening inventory at 1 January 2015.

4 Annual fixed overheads are budgeted to be $324 000.

5 Fixed overheads are absorbed on a unit basis.

REQUIRED

(a) Calculate the monthly breakeven point in units.

.....

.....

.....

..... [2]

(b) Prepare forecast profit statements for January and February 2015 using absorption costing.

	January 2015 $	February 2015 $

[4]

(c) Prepare forecast profit statements for January and February 2015 using marginal costing.

	January 2015 $	February 2015 $

[4]

(d) Prepare a reconciliation statement showing the difference between the absorption costing profit and the marginal costing profit for January and February 2015.

	January 2015 $	February 2015 $
Absorption costing profit		
Marginal costing profit		

[4]

(e) Explain why the absorption costing statement produces a different profit figure to the marginal costing statement.

.....

.....

.....

.....

.....

.....

.....

..... [4]

Additional information

The directors of KC Global Limited are considering an advertising campaign starting in January 2015. This will cost $60 000 spread evenly over the year. The volume of sales and production would both increase by 10%.

REQUIRED

(f) Prepare a revised profit statement for January 2015, using absorption costing.

.....

.....

.....

.....

.....

.....

.....

..... [5]

For Examiner's Use

3 Bazeri Limited manufactures a range of components and the directors provide the following forecast information for the year ended 31 December 2014.

Direct material	125 000 kilos @ $2.48 per kilo
Direct labour – Department A	32 000 hours @ $10.00 per hour
Direct labour – Department B	20 000 hours @ $9.00 per hour
Production overhead – Department A	$520 000
Production overhead – Department B	$480 000
Administration overhead	$405 000
Profit margin	20%

REQUIRED

(a) Calculate the forecast profit for Bazeri Limited for the year ended 31 December 2014.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [9]

Additional information:

Production overheads are to be recovered for both departments A and B on the basis of direct labour hours.

Administration overheads are to be recovered as a percentage of direct production costs.

REQUIRED

For Examiner's Use

(b) Calculate the following forecast overhead absorption rates:

(i) Production overhead – Department A

.....

.....

.....

..... [2]

(ii) Production overhead – Department B

.....

.....

.....

..... [2]

(iii) Administration overhead

.....

.....

.....

..... [2]

Bazeri Limited has been asked to quote for a job, reference J316, that would use the following:

For Examiner's Use

Direct material 5625 kilos
Direct labour – Department A 1500 hours
Direct labour – Department B 1200 hours

REQUIRED

(c) Calculate the total costs of job J316.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [11]

(d) Calculate the price Bazeri Limited will quote for job J316.

.....

.....

.....

.....

.....

..... [4]

[Total: 30]