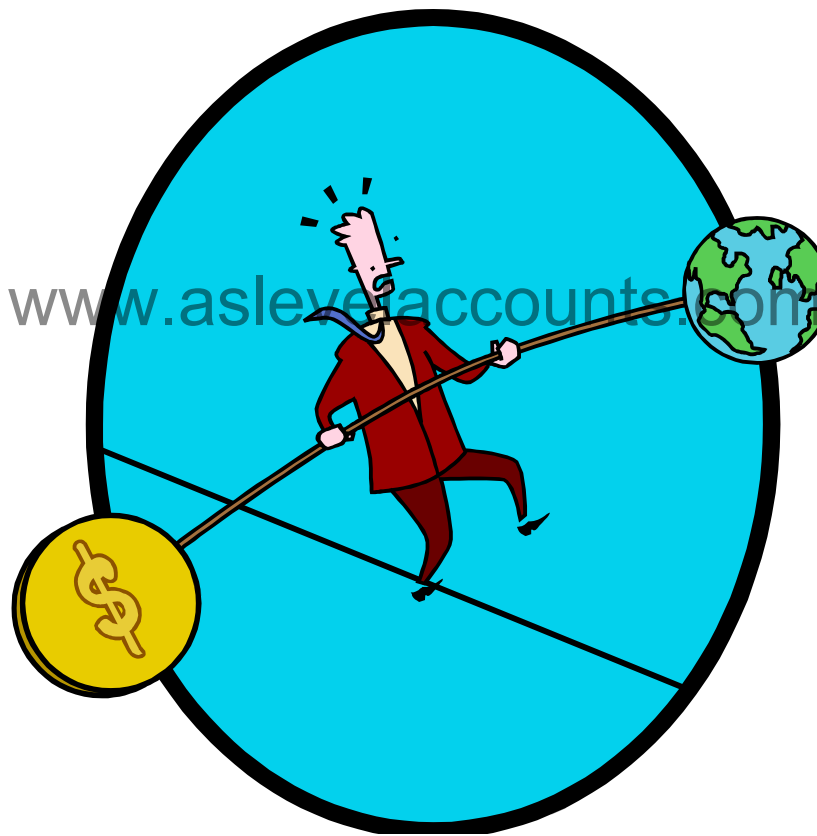


Managerial Accounts



(b) Calculate the break-even point for each type of lock in both units and dollars.

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(c) Advise whether Angelicus should cease production of Domestic and Commercial locks. Give your reasons.

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- 3 Bilanben Ltd manufactures grass-cutting equipment. The following was the cost of production for the year ended 31 December 2003, based on a normal capacity of 4500 units.

	\$
Direct Materials	157 500
Direct Labour	270 000
Variable Overheads	54 000
Fixed Overheads	125 000
	606 500

There are 30 production workers who each work a 30-hour week and have two weeks unpaid holiday per annum.

Additional costs, based on a production of 5000 units, are administrative overheads of \$140 000, of which 50% are fixed, and \$150 000 for advertising. Selling price is \$250 per unit.

The Sales Director has suggested that during 2004 he can sell 5000 units at \$250 each. There are **three** options to fulfil this requirement.

Option 1

To introduce overtime. This would require a pay rise of 50% per hour after the normal 30 hours. There would also be an additional cash payment of \$1.50 for each extra hour worked.

Option 2

To hire new machinery for one year at a cost of \$50 000. This would leave all variable costs unchanged. This was already under consideration and \$17 500 had been spent on market research.

Option 3

To buy in the extra units at a cost of \$200 each.

REQUIRED

- (a) Calculate the net profit on the 2003 production of 4500 units, assuming all were sold.

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(c) Write a brief statement comparing the three options.

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3 Quango Ltd produces four types of lamp – Platinum, Gold, Silver and Bronze. Unit selling prices and costs are as follows:

Product	Platinum	Gold	Silver	Bronze
	\$	\$	\$	\$
Selling price	184	148	142	138
Costs				
Direct materials	24	21	30	18
Direct labour	30	27	24	27
Overheads	30	25	20	25

Direct material and Direct labour are variable costs.
Overheads are 40% variable and 60% fixed.

Quango's intention was to produce and sell the following quantities during the year ended 31 May 2005.

Product	Quantity (units)
Platinum	2000
Gold	1800
Silver	1600
Bronze	2400

REQUIRED

(a) A statement, in marginal costing format, of profitability for each product, and in total.

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It was then discovered that fixed overheads were likely to rise by 8% and the total amount available to pay overheads could not be increased.

REQUIRED

(b) A statement, taking into account the possibility of the increase in fixed overheads, and maximising profit, showing the **quantity** of each product to be produced.

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(c) A statement in marginal costing format of profitability for **each** product **and** in **total**, based on your answer to **(b)**.

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[Total: 30]

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- 3 Hoi Poloi plc makes 3 types of filing cabinet, four-drawer, three-drawer and two-drawer. The business uses general purpose machines which are equally suitable to be used in the manufacture of all three products.

Data for the year ended 30 April 2005 was as follows:

	four drawer \$	three drawer \$	two drawer \$
Total sales	410 400	123 900	427 500
Total variable costs	304 000	88 500	285 000
Allocated fixed costs	98 000	48 000	135 000
Profit (Loss)	8 400	(12 600)	7 500

It had been proposed that the three-drawer cabinet be discontinued, as it was making a loss.

REQUIRED

- (a) State whether this proposal should have been agreed, giving your reasons.

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Sales and cost data for the year ended 30 April 2006 were as follows:

	four drawer	three drawer	two drawer
Sales in units	15 000	6 000	30 000
Raw materials	\$12	\$8	\$4
Variable overheads	\$3	\$2	\$2
Unit contribution	\$7	\$6	\$5
Machine hours per unit	0.5	0.5	0.4
Machine operators are paid \$10 per hour.			
Allocation of fixed costs	\$98 000	\$48 000	\$135 000

REQUIRED

(b) Calculate the selling price per unit for each product.

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(c) Calculate for **each** product the break-even point in both units and sales value.

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(d) Calculate for **each** product the profit or loss for the year ended 30 April 2006.

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- (b) Calculate the break-even point for **each** type of refrigerator in both **units** and **dollars**. Give your answers to the nearest whole number. Workings **must** be shown.

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 [12]

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- (c) The table at the beginning of the question shows that both the Household and the Business models appear to be making a loss. Explain why Fernando should **not** cease production of these two types of refrigerator.

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[Total: 30]

3 Aloysius Dixon of Dixon's Tableworks anticipates that in 2009 he will be able to sell 10 000 tables at \$1100 each. However, his works manager has already produced the following figures for 2009 based on the factory's current production of 8000 tables per annum.

	\$	\$	
Sales (8000 x \$1100)		8 800 000	
Direct materials	1 024 000		
Direct wages	5 000 000		
Production overhead	640 000		
Sales overhead	<u>480 000</u>	<u>7 144 000</u>	
Profit		<u><u>1 656 000</u></u>	

All overheads are 50 % fixed, 50 % variable.

250 000 labour hours are worked.

There are 3 options under consideration which allow sales to increase to 10 000 tables.

Option 1

Purchase 2000 tables from another manufacturer at \$920 each.

Option 2

Lease new and improved machinery at a cost of \$260 000 for the year. This would allow production of 10 000 tables per annum with no change in unit variable costs. This was previously under consideration and \$40 000 had been spent on a feasibility study.

Option 3

Using the existing machinery, introduce an evening shift thus providing an additional 62 500 labour hours. Wage rates for this shift would have to increase by 15 % to take into account unsocial hours to be worked. Also the additional staff needed would have to be trained at a cost of \$50 000 - this cost to be absorbed in 2009.

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REQUIRED

(a) Calculate the original unit contribution.

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(c) State which option should be accepted, giving **one** advantage and **one** disadvantage, of that option.

For
Examiner's
Use

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[Total: 30]

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- 3 Gala Sounds Ltd manufactures DVD players which sell for \$80 each. Production is 150 000 units per annum, all of which are sold.

Unit costs at that level of production are:

	\$
Direct materials	40
Direct labour	8
Variable overheads	10
Fixed overheads	11

REQUIRED

- (a) Calculate one year's **total** profit or loss.

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The sales manager believes that if the selling price could be reduced to \$75 per unit, an additional 50 000 units would be sold.

The existing production of 150 000 units is based on a single day shift working a full day without overtime. The sales manager believes that an evening shift might also be introduced, using one-third of the number of workers employed on the day shift. This would mean that an annual total of 200 000 units could be produced.

As a result of the changes, the following would take place:

- 1 To compensate for unsocial hours, evening shift workers will be paid an additional \$2 per unit.
- 2 Variable overheads for the evening shift increase by 10%.
- 3 Economies of scale mean that a discount of 15 % will be received on purchase of **all** direct materials.
- 4 Fixed costs increase by \$1 000 000.

All production will continue to be sold.

REQUIRED

*For
Examiner's
Use*

(b) Calculate the **additional** profit or loss on the introduction of the new shift system.

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Other factors need to be taken into consideration before introducing a new shift system.

*For
Examiner's
Use*

REQUIRED

(c) Discuss, briefly, **three** of these factors.

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[Total: 30]

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- 3 Poynder and Park plan to manufacture a new product for use in the underwater construction industry. This product will be sold for \$34.00 per unit.

For
Examiner's
Use

The following are the unit costs of the product:

Direct Materials

- 1 waterproof container \$1.00
- Chemical P 3 kilograms at \$1.00 per kilogram
- Chemical Q 4 kilograms at \$1.75 per kilogram

Direct labour

- 15 minutes at \$8 per hour

Variable factory overhead

- Absorbed at \$14.00 per direct labour hour.

Fixed factory overhead

- \$3040 for the 6 months ended 30 June 2011. To be absorbed at a rate per unit.

Expected production and sales for the 6 months ended 30 June 2011 are:

	January	February	March	April	May	June
Production (units)	50	50	60	60	80	80
Sales (units)	40	45	60	70	75	75

Additional costs will be:

- Sales commission per unit sold \$1.00
- Fixed administrative costs \$2500 per annum

REQUIRED

- (a) Prepare a detailed forecast income statement (profit and loss account) for the six months ended 30 June 2011, using **marginal** costing. Write your answer on the **next** page.

You may use the space below for your workings.

(c) Prepare a statement to reconcile the profit in (a) with the profit in (b).

*For
Examiner's
Use*

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[Total: 30]

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3 Break-even analysis has been described as a useful tool for the accountant.

For
Examiner's
Use

REQUIRED

(a) (i) Define the break-even point.

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(ii) Define the margin of safety.

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The following figures have been extracted from Katerina's books of account for the month of April 2010:

	\$	\$
Sales		460 000
Total variable costs	299 000	
Total fixed costs	<u>90 000</u>	<u>389 000</u>
Profit		<u><u>71 000</u></u>

REQUIRED

*For
Examiner's
Use*

(b) Calculate Katerina's contribution as a percentage of sales (c/s ratio).

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(c) Calculate Katerina's break-even point.

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(d) Calculate the sales in dollars necessary to make a profit of \$100 000.

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3 Garth Vader is a wholesaler who sells specialist cabinets. His fixed costs are \$8 million.

He buys in cabinet 1 for \$400 and sells it for \$500.

As an alternative he is considering manufacturing the cabinets and has studied two methods of production.

The manufacture of cabinet 2 relies more on labour whilst cabinet 3 relies more on machinery. The costs would be as follows:

	Cabinet 2	Cabinet 3
Variable costs per cabinet	\$240	\$220
Additional fixed costs per production line	\$36 million	\$79.2 million
Proposed selling price per cabinet	\$480	\$520

The additional fixed costs for cabinet 3 are higher as more expensive machinery has to be leased and additional factory rent will be paid.

It is assumed, whichever option is chosen, that all production will be sold.

Only **one** type of cabinet will be sold.

REQUIRED

(a) (i) Calculate for cabinet 2 the number to be sold so that the total annual costs equal the total purchase costs for cabinet 1.

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(ii) Calculate for cabinet 3 the number to be sold so that the total annual costs equal the total purchase costs for cabinet 1.

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(iii) 300 000 units	Cabinet 1	Cabinet 2	Cabinet 3
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For Examiner's Use

(d) Calculate the minimum production level in units at which it would pay Garth Vader to manufacture the cabinets instead of buying in cabinet 1.

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(e) State **four** assumptions made when using break-even analysis.

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[Total: 30]

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- 3 Ventana Ltd produce three different types of slatted wooden blinds, Pine, Teak and Oak. The company's forecast figures for the year ended 30 April 2012 were:

For
Examiner's
Use

	Pine \$	Teak \$	Oak \$
Selling price (per unit)	61	158	170
Costs (per unit)			
Direct material	30	60	80
Direct labour	15	46	24
Variable overhead	6	12	16

Fixed overhead is absorbed on the basis of 50% of direct material cost.

Annual production and sales are forecast to be:

Pine	2000 units
Teak	1600 units
Oak	1000 units

REQUIRED

- (a) For the year ended 30 April 2012:

- (i) Prepare a statement to show the contribution per unit for **each** product.

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- (ii) Calculate the total forecast fixed cost for the year.

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3 Paul owns two car wash businesses, called City Centre Car Wash and Suburban Car Wash.

City Centre Car Wash has the following monthly costs:

Per car	\$
Detergent	1.00
Electricity	0.50
Water costs	0.05
Wage costs	1.25
Per month	\$
Insurance of site	800
Lease of equipment	2040
Manager's salary	1000

Additional information:

Both car wash businesses are open for 400 hours every month.

The cars are washed one at a time.

The average time taken to wash each car is 10 minutes.

City Centre Car Wash is currently operating at 80% capacity and Suburban Car Wash at 70% capacity.

REQUIRED

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(a) For City Centre Car Wash, calculate the following correct to **two** decimal places:

(i) the total number of cars washed per month

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(ii) the total variable operating cost per month

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(iii) the total operating cost per month

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(iv) the average cost per car wash

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(v) the price to be charged per car to give a profit margin of 20%

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(vi) the total profit per month.

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(b) Using the price calculated in (a)–(v) above, calculate the following for City Centre Car Wash, correct to **two** decimal places:

(i) the contribution per car (per unit)

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(ii) the break-even point in units

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 [2]

(iii) the margin of safety, in dollars, when operating at 80% capacity

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 [2]

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(iv) the margin of safety, in dollars, if operating efficiency falls to 60% capacity

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 [2]

(v) the contribution/sales (C/S) ratio when operating at 80% capacity.

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 [2]

Suburban Car Wash charges the same price as City Centre Car Wash.

At that price Suburban Car Wash shows a contribution to sales (C/S) ratio of 40%. Fixed costs are \$3240.

For
Examiner's
Use

REQUIRED

(c) Calculate, for Suburban Car Wash

(i) the break-even point in units **and** in dollars

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(ii) the total monthly profit when operating at 70% capacity.

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[Total: 30]

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3 Blue Skies Ltd manufactures three types of tent: Beach, Explorer and Family.

The company provides the following forecast data for the year ending 30 April 2013:

	Beach	Explorer	Family
Forecast demand (units)	30 000	40 000	24 000
Per Unit	\$	\$	\$
Selling price	70	130	200
Raw materials	30	36	54
Direct labour	8	20	38
Variable overhead	6	26	48

The same waterproof material is used in the manufacture of each tent.

The cost of material is estimated to be \$6 per square metre.

Fixed costs for the year ending 30 April 2013 are estimated to be \$3 500 000.

REQUIRED

(a) (i) Calculate the unit contribution for each product.

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For
Examiner's
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- (c) Using the quantity of material that is available for production, calculate the number of **each** type of tent that should be produced so that total profit is maximised.

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- (d) Using the quantity of material that is available, prepare a marginal cost profit statement.

Clearly show the contribution made by **each** type of tent and the **total** profit made in the year.

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- 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

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

Cost	Basis	Machining	Assembly	Maintenance	Canteen

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[12]

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

Machining

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Assembly

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[4]

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

	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.

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

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

*For
Examiner's
Use*

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[Total: 30]

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- 3 Wigmore Ltd uses one factory overhead recovery rate which is a percentage of total direct labour costs. The rate is calculated from the following budgeted data.

Department	Factory overheads \$	Direct labour costs \$	Direct labour hours	Direct machine hours
Production	150 000	500 000	120 000	7 000
Assembly	450 000	1 000 000	225 000	10 000
Packing	360 000	900 000	200 000	–

The cost sheet for job 787 shows the following information.

Department	Direct labour costs \$	Direct labour hours	Direct machine hours	Direct material costs \$
Production	2 400	400	80	180
Assembly	1 100	700	90	150
Packing	1 000	650	–	170

General administration expenses of 20% are added to the total factory cost. The selling price to the customer is based on a 25% net profit margin.

REQUIRED

- (a) Calculate the current factory overhead rate for Wigmore Ltd.

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(b) Prepare a detailed cost statement to calculate the selling price for job 787.

For Examiner's Use

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(c) Calculate the overhead rate for **each department** using the following methods:

(i) Percentage of direct labour cost

Production

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Assembly

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Packing

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[3]

(ii) Direct labour hour rate

Production

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Assembly

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Packing

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(d) Using the direct labour hour rates calculated in (c) (ii), prepare a detailed cost statement to calculate the new selling price for job 787.

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For
Examiner's
Use

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- (e) (i) Discuss the problems associated with using predetermined overhead absorption rates.

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- (ii) State the effect on profits if the factory **does not** operate at full capacity.

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[Total: 30]

- 3 Darnick Holdalls Ltd manufacture three types of high quality hand-made cases, Small, Medium and Large. These are manufactured in two departments, the cutting department and the stitching department. There are also two service departments, maintenance and canteen. The estimated data for the year ending 31 December 2004 is as follows.

	Small	Medium	Large
Estimated production (units)	10 000	9 000	4 400
Machine hours required per unit	3	4	5
	\$	\$	\$
Unit selling price	125	140	155
Unit prime costs			
Direct materials	30	35	40
Direct labour – cutting department	17	18	20
Direct labour – stitching department	5	6	7

Estimated overheads for the year ending 31 December 2004

	Cutting	Stitching	Maintenance	Canteen	Total
Space costs					\$90 000
Depreciation of Equipment					\$200 000
Allocated overheads	\$44 200	\$47 600	\$15 000	\$18 000	\$124 800
					<u>\$414 800</u>
Additional information					
Floor area (sq metres)	5 000	6 000	2 000	2 000	
Number of employees	12	9	4	5	
Cost of equipment	\$700 000	\$850 000	\$250 000	\$200 000	

REQUIRED www.aslevelaccounts.com

- (a) Use the grid below to prepare an overhead analysis sheet for the year ending 31 December 2004 detailing overheads for the cutting and stitching departments. Canteen costs are shared among all the other departments on the basis of number of employees. Maintenance costs are shared between the production departments on the basis of 70% to stitching and 30% to cutting.

Overheads	Cutting \$	Stitching \$	Maintenance \$	Canteen \$

(b) Calculate the overhead recovery rate for

- (i) the cutting department, based on direct wages;
- (ii) the stitching department, based on machine hours.

Show all workings.

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(c) Give reasons for the two different methods used in (b).

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- 3 Bodger Ltd has been in the business of buying and selling washing machines for some years, but has decided to look at the possibility of manufacturing its own brand. At present, under Option 1, machines are bought in for \$280 and sold for \$400. You have been asked to compare this with the two new options under assessment. Under Option 1 fixed costs are minimal and are not taken into account. The figures are as follows.

		Option 2	Option 3
		\$	\$
Unit costs	Direct Materials	50	50
	Direct Labour	70	30
	Variable Overheads	30	20
Fixed Costs		\$30 000 000	\$50 000 000
Unit Selling Price		\$370	\$420

All costs relating to the washing machines are included in the above.
The directors expect to sell at least 200 000 machines per annum.

REQUIRED

- (a) Calculate, to the nearest whole number, the break-even point in units **and** in value for options 2 and 3.

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(e) Briefly assess **each** option.

Option 1: [2]

Option 2: [2]

Option 3: [2]

(f) State **two** assumptions which may be made when using break-even analysis and state **one** limitation of each assumption. Your answer should take the form of the example given below.

ASSUMPTION	LIMITATION
All production is sold	Businesses usually have closing stock
1.
2.

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[4]

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- 3 Gerry Hatrick Ltd manufactures and sells video cameras. The unit selling price and production costs are as follows:

Selling price	\$ <u>800</u>
Direct materials	100
Direct labour	90
Variable overheads	50
Fixed overheads	<u>160</u>

The fixed production overheads assume a monthly production of 2000 units.

The following monthly costs are also incurred:

Fixed administrative overheads	\$80 000
Variable sales overheads	10% of sales value
Fixed sales overheads	\$120 000

During the month of September 2005 a total of 2400 units were produced, of which 1800 were sold. There was no stock on hand at the beginning of September.

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(b) Explain why the profit found when using absorption costing differs from the profit found in marginal costing.

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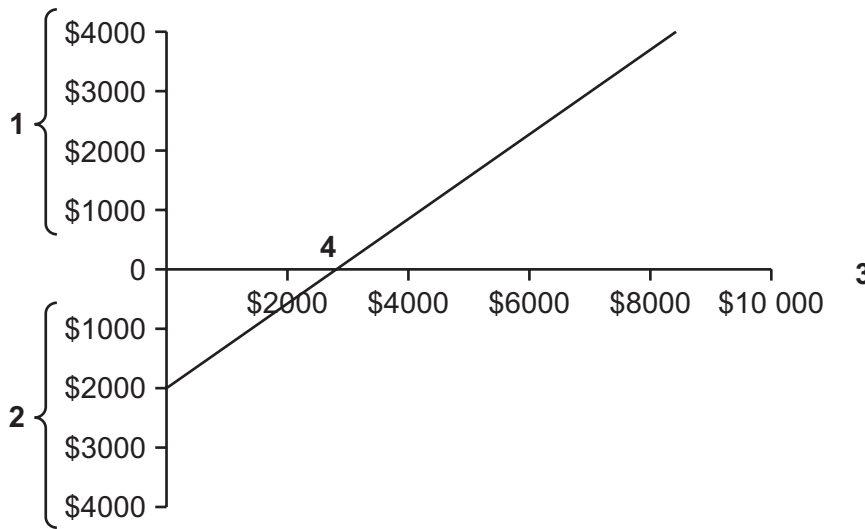
(c) Calculate the break-even point for September 2005 in sales **volume**.

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[Total: 30]

- 3 The following Contribution/Sales chart was prepared for Larry Ltd for the first year of business.

Larry Ltd – Profit (Contribution/Sales) Chart



Selling price is \$30 per unit
 Fixed costs (shown) \$2000
 Variable costs are \$9.00 per unit
 All of the output of 300 units is sold.

REQUIRED

- (a) (i) State what **each** of the numbers **1**, **2**, **3** and **4** on the chart represent.

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- (ii) Calculate the break-even point in both units and sales value. The formula for your calculations **must** be shown.

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(iii) Define and explain margin of safety.

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(iv) Calculate the margin of safety in units **and** in value.

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In the second year of business, expected production and sales is 400 units, and fixed costs are expected to rise by 15%. Selling price and variable costs will remain as before.

REQUIRED

(b) (i) Calculate the anticipated profit in the second year of business.

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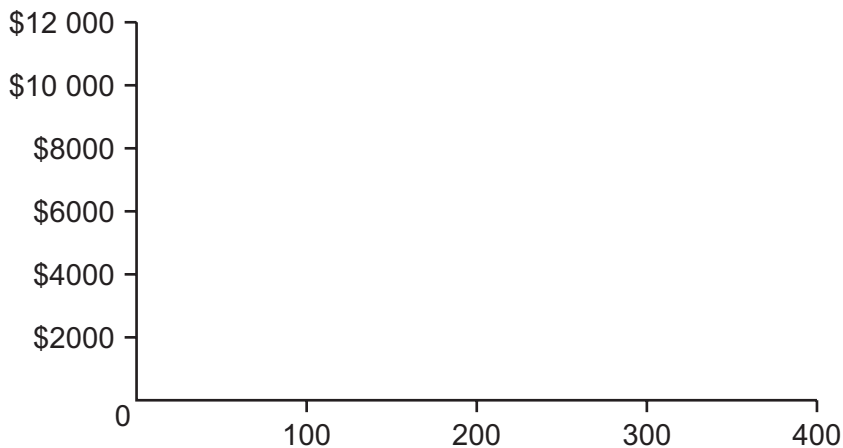
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(ii) Prepare a break-even chart for the second year of business.



[6]

REQUIRED

(c) State **four** assumptions made when using break-even charts.

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[Total: 30]

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- 3 Ken owns a manufacturing business which makes a single product. The following figures apply for all relevant periods.

Per unit	\$
Selling price	35
Direct material	9
Direct labour	11
Fixed manufacturing overheads	5

Fixed manufacturing overheads are absorbed into product costs at pre-determined rates per unit of output. Under- or over-absorbed manufacturing overheads are transferred to profit and loss in the period in which they occur.

Normal production is 80 000 units per accounting period.

REQUIRED

- (a) Calculate the break-even point in **both** units and dollars, based on the information above.

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The following information has been acquired for the last three accounting periods.

Three months ended	28 February	31 May	31 August
	Units	Units	Units
Sales	60 000	80 000	45 000
Stock at start of period	15 000	0	35 000
Stock at end of period	0	35 000	20 000

(c) Calculate the profit or loss in **each** period using absorption costing.

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(d) Prepare a financial statement that reconciles your profit using marginal costing with your profit using absorption costing.

For three months ended	28 February	31 May	31 August
	\$	\$	\$
Profit using marginal costing			
Profit using absorption costing			

[6]

[Total: 30]

- 3 Singh Ltd manufactures three products - Athol, Brose and Crowdie – selling at \$3, \$7 and \$4 respectively. The manufacturing process is the same for all products but each requires a different quality of raw material.

Expected trading results for the six months ending 31 May 2010 are as follows:

	Athol \$	Brose \$	Crowdie \$	Total \$
Sales	<u>120 000</u>	<u>91 000</u>	<u>88 000</u>	<u>299 000</u>
Variable costs				
Direct materials	48 000	52 000	27 500	127 500
Direct labour (paid at \$4 per hour)	20 000	13 000	22 000	55 000
Variable overheads	<u>40 000</u>	<u>39 000</u>	<u>11 000</u>	<u>90 000</u>
	<u>108 000</u>	<u>104 000</u>	<u>60 500</u>	272 500
Fixed costs				<u>20 000</u>
				<u>292 500</u>
Estimated profit				<u>6 500</u>

REQUIRED

- (a) Calculate the estimated number of direct labour hours needed to manufacture **each** product, and in total.

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- (b) Calculate the estimated contribution **per direct labour hour** for products Athol and Crowdie.

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(c) Calculate the number of units of **each** of the **three** products produced per direct labour hour.

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Management has decided to cease production of Brose with effect from 1 June 2010.

REQUIRED

(d) State why management has decided to take this action.

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The demand for the remaining products is expected to be:

Athol 60 000 units;
Crowdie 32 000 units.

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Management has undertaken to continue production as follows:

- (i) switch the labour force from Brose to Athol and Crowdie: additional labour may also be required;
- (ii) the rate per hour for direct labour will be increased to \$4.10 per hour;
- (iii) selling prices per unit of Athol and Crowdie will be unchanged;
- (iv) direct material costs per unit will be unchanged;
- (v) the ratio of variable overheads to selling price for each product will be unchanged;
- (vi) fixed costs will increase by 10%.

REQUIRED

- (e)** Use the information above to prepare an estimated profit statement for the six months ending 30 November 2010. **Follow the layout used at the beginning of the question.**

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[Total: 30]

- 3 Cariokae Ltd is a specialist manufacturer of steel rods for use in the construction industry. The company has three different machines each of which is capable of producing the rods. When a company receives a new order it has to decide which of the three machines to use.

Data regarding the machines is as follows:

MACHINE	A	B	C
Set-up costs per order	\$200	\$330	\$600
Number of rods produced per machine-hour	100	150	200
Number of machine operators	4	5	6

Variable factory overhead for each machine is \$12 per direct labour hour.
Direct material needed to produce 100 rods is \$300, whichever machine is selected.
Machine operators are paid \$10.50 per hour.

REQUIRED

- (a) Order P235 has been received for 3000 rods.
(i) Calculate the costs of producing order P235 on **each** machine.

DATA FOR ORDER P235	MACHINE		
	A	B	C
Order quantity			
Production rates per hour			
Operating hours			
Number of operators			
Direct labour hours worked			
COSTS FOR P235	\$	\$	\$
Direct materials			
Direct labour			
Variable overheads			
Set up costs			
Total costs			

[13]

(ii) Advise the production manager which machine to use for order P235 to minimise costs.

For
Examiner's
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It has been suggested that by adding **one** additional operator to **each** machine,

- 1 there would be an efficiency saving of 10% on direct materials and
- 2 the rate of production would increase by 20%.

REQUIRED

(b) Assuming that the additional operator is employed on **each** machine, re-calculate your answer for order P235.

Data for order P235

MACHINE

A

B

C

	A	B	C
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- (c) (i) State how your advice to the production manager should differ if the additional operator is employed.

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- (ii) State whether the additional operator should be retained for each machine.

Explain your reasoning.

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[Total: 30]

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3 Debussy currently produces one product for which the following information is available:

Product D946	\$ per unit
Selling price	6.00
Direct materials	2.50
Direct labour	1.40
Variable overheads	1.10
Total fixed costs	\$120 000 per annum
Sales per annum (units)	200 000

REQUIRED

(a) Using the data for the current product **D946** calculate the following:

(i) break – even point in units **and** sales value;

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[6]

(ii) profit for the year, showing the contribution per unit;

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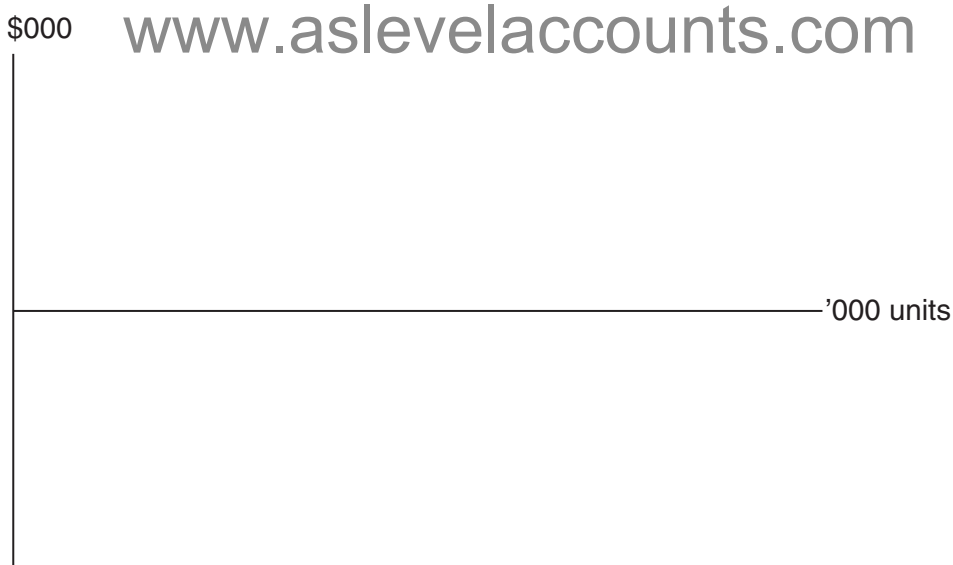
[4]

(iii) margin of safety in units **and** as a percentage of sales.

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(b) Prepare the contribution to sales (profit/volume) graph, using the chart below, for the current product **D946**. Clearly show the profit at the current sales level.



[4]

Debussy is considering extending its product range with two additional products.

The fixed costs would double to \$240 000 if any new product was introduced and would apply regardless of the number of new products introduced.

	Product D947	Product D948
	\$ per unit	\$ per unit
Selling price	9.00	13.00
Direct materials	6.60	7.00
Direct labour	2.40	2.10
Variable overheads	1.50	0.90
Sales per annum (units)	50 000	30 000

The demand for each product is estimated to be fixed at the levels stated, regardless of whether one or two additional products are introduced.

The existing workforce is currently operating at full capacity in the production of product D946.

REQUIRED

(c) Debussy decides to extend the product range with **both** additional products.

Calculate the maximum profit Debussy could achieve in the next full year, if it were to produce products **D946**, **D947** and **D948**.

Show clearly the total contribution per product.

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(d) Based on your calculations advise Debussy whether or not to go ahead and produce all three products. Give reasons for your advice.

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[Total: 30]

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3 Mandar Limited manufactures components for the agricultural industry. The following budgeted information is available for the year ended 30 April 2009.

For
Examiner's
Use

		\$	\$
Direct materials			2 300 000
Direct labour:			
Cutting department	(76 000 hours)	501 600	
Pressing department	(72 000 hours)	450 000	
Production department	(104 000 hours)	702 000	
Assembly department	(44 000 hours)	<u>264 000</u>	
			<u>1 917 600</u>
Prime cost			4 217 600
Factory overheads:			
Cutting department		364 800	
Pressing department		439 200	
Production department		509 600	
Assembly department		<u>233 200</u>	
			<u>1 546 800</u>
Cost of production			5 764 400
Administration costs			<u>1 152 880</u>
Total costs			<u>6 917 280</u>

Additional information

- 1 Factory overheads are absorbed by departmental direct labour hours.
- 2 Administration costs are absorbed as a percentage of the cost of production.

REQUIRED

(a) Calculate the following for **each** department.

- (i) The budgeted direct labour cost per hour.

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- (ii) The budgeted factory overhead absorption rate per direct labour hour.

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Mandar Limited has received a request for some components, Job Number SMC20.

The following direct costs have been estimated.

Direct materials	\$	\$
		140 156
Direct labour:		
Cutting department	13 200	
Pressing department	9 000	
Production department	16 200	
Assembly department	<u>6 000</u>	
		<u>44 400</u>
Prime cost		<u>184 556</u>

The direct labour costs are based on budgeted hourly rates.

(d) Explain why Mandar Limited absorbs its overheads using direct labour hours.

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(e) State **two** alternative methods the business could use to absorb their overheads.

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[Total 30]

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3 Tattersall Ltd manufactures a single product. They have two production and two service departments.

The following information relates to a four-week period.

	Production Departments		Service Departments	
	Machining	Assembly	Maintenance	Canteen
Overheads	\$143 500	\$154 700	\$165 800	\$176 900
Direct machine hours	18 845	14 050	–	–
Direct labour hours	6 065	20 350	–	–

The service departments' overheads are apportioned to the production departments on the following basis:

	Machining	Assembly	Canteen
Maintenance	60%	30%	10%
Canteen	40%	60%	–

REQUIRED

(a) Prepare an overhead absorption apportionment table clearly showing the reapportionment of the service departments' overheads to the appropriate departments for one period.

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

State the bases used.

Show your answer to **two** decimal places.

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The manager of Tattersall Ltd calculates selling price per unit based on full cost plus a 25% mark-up.

The costs per unit are:

- Materials 3 metres at \$4 per metre
- Labour 7 hours at \$8 per hour

Each unit takes 3 hours in the machining department and 4 hours in the assembly department.
All overheads are fixed.

REQUIRED

(c) Calculate the full cost per unit.

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(d) Calculate the selling price per unit.

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(e) Calculate the number of units Tattersall Limited has to produce and sell in each period to break-even.

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(f) State **two** limitations of break-even analysis.

(i)
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(ii)
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[Total 30]

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- 3** Mary Smith's sales and costing information for the year ended 31 December 2010 included the following:

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Use

Sales (units)	25 000
Selling price per unit	\$35
Total costs for the year	\$
Direct materials	200 000
Direct labour	250 000
Variable overheads	50 000
Fixed costs	180 000

REQUIRED

- (a)** Calculate the following for the year ended 31 December 2010.

- (i)** Contribution per unit

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- (ii)** Break even output level in units

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(iii) The margin of safety expressed both in units **and** as a percentage of sales.

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(b) State **three** fixed costs a business typically incurs.

(i)
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[1]

(ii)
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(iii)
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(c) Explain what is meant by the term 'stepped costs'.

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During 2011 sales (in units) were expected to remain at the 2010 level of 25 000 units.

Mary Smith is in the process of compiling her 2012 budget. Research has indicated a potential increase in sales (in units) of 60% compared with the 2010 level. The company is assuming that selling price **and** all variable costs per unit in 2012 will remain at the 2010 level.

The current production level is 32 000 units per annum.

To increase production further would require:

capital investment of \$3 000 000;

an increase in fixed costs of \$195 000 per annum.

REQUIRED

(d) Prepare **and** label a break-even chart for 2012, taking into account all of the potential amendments.

Use the space below for your workings.

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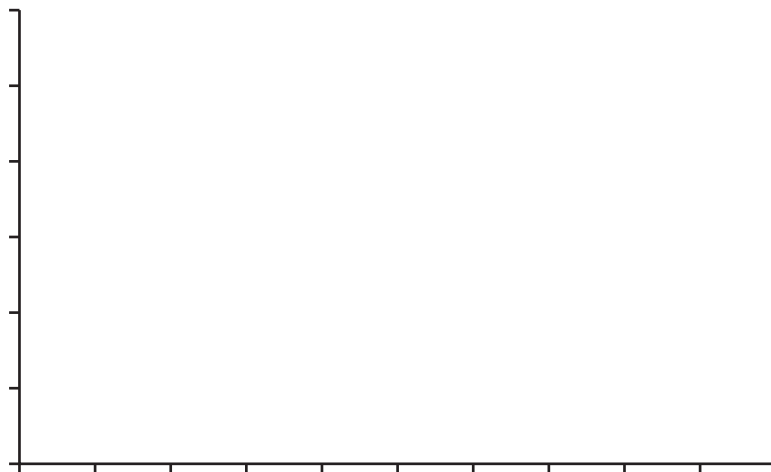
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- (e) Increasing production will allow the firm to potentially earn more profit. However, it could pose significant risks to the business.

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Evaluate the above statement using your answers to parts (a) and (d).

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[Total: 30]

- 3 Redwood Manufacturing Ltd started in business on 1 January 2008 to manufacture furniture to customers' special requirements. The following information is available for its first three years in business.

	2008	2009	2010
	\$	\$	\$
Fixed Costs	60 000	66 000	70 000
Direct materials (per unit)	15	15	16
Direct labour (per unit)	8	9	9
Variable overheads (per unit)	4	6	7
Selling price (per unit)	40	44	46

The production and sales quantities during the period were:

Production (units)	15 000	12 000	16 000
Sales (units)	12 000	13 000	16 000

All inventory has been valued using FIFO.

REQUIRED

- (a) Prepare a statement showing the gross profit for **each** of the **three** years if the company used
- (i) marginal costing principles to valuing inventory (stock);

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(ii) absorption costing principles to valuing inventory (stock).

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