Answers

Section B

1 (a) Target costing steps

Deriving a target cost

Step 1: A product or service is developed which is perceived to be needed by customers and therefore will attract adequate sales volumes.

Step 2: A target price is then set based on the customers' perceived value of the product. This will therefore be a market based price.

Step 3: The required target operating profit per unit is then calculated. This may be based on either return on sales or return on investment.

Step 4: The target cost is derived by subtracting the target profit from the target price.

Step 5: If there is a cost gap, attempts will be made to close the gap. Techniques such as value engineering may be performed, which looks at every aspect of the value chain business functions with an objective of reducing costs while satisfying customer needs.

Step 6: Negotiation with customers may take place before deciding whether to go ahead with the project.

(b) Application at C Co

Difficulties in implementation

– C Co is a service company and in service companies, it is often more difficult to find a precise definition for some of the services. In order for target costing to be useful, it is necessary to define the service being provided. C Co actually provides a range of services to clients including specialist care wards at hospitals. This means that the definition of the services being provided will vary. Different target costs will need to be derived for the different services provided.

– C Co has two types of clients: regular clients and one-off clients. Since the service for regular clients is being repeated, it should be relatively easy to set a target cost for these jobs. However, for the one-off jobs, there may not be any comparative data available and therefore setting the target cost will be difficult.

– Similarly, some of the work available is very specialist. For example, cleaning restaurants and kitchens after an outbreak of food poisoning will require specialist techniques and adherence to a set of regulations with which C Co may not be familiar. It may be difficult to establish the market price for a service like this, thus making it difficult to derive a target cost.

Benefits to C Co

– Target costing is useful in competitive markets where a company is not dominant in the market and therefore has to accept a market price for their products. C Co is operating in a competitive market and whilst the service offered by C Co is more specialist, it is clear from the recent drop in sales that price increases do lead to loss of customers. C Co cannot therefore ignore the market price for cleaning services and simply pass on cost increases as it has done. Target costing would therefore help C Co to focus on the market price of similar services provided by competitors, where this information is available.

– If after calculating a target cost C Co finds that a cost gap exists, it will then be forced to examine its internal processes and costs more closely. It should establish why the prices of the products it uses have increased in the first place. If it cannot achieve any reduction in these prices, it should consider whether it can source cheaper non-chemical products from alternative suppliers. So, target costing will benefit C Co by helping it to focus on cost reduction and consequently customer retention.

Note: *More points could be made and would earn marks.*

2 (a) Calculations

Bus: (0·4 x 0·67) + (0·32 x 0·8) + (0·28 x 0·82) = 75·36%
Prime: (0·4 x 0·58) + (0·32 x 0·76) + (0·28 x 0·83) = 70·76%
Express: (0·4 x 0·67) + (0·32 x 0·76) + (0·28 x 0·89) = 76·04%

(b) Accuracy of statement

The MD's statement says that Bus Co's customers are the most satisfied of any national bus operator. However, this is not quite the case since, when the 'overall satisfaction' levels are calculated, Express's level is 76·04% compared to Bus Co's 75·36%. So, the first part of the MD's statement is untrue.

The MD then goes on to say that Bus Co is leading the way on what matters most to customers – value for money and punctuality. Given the weightings attached to these two criteria, it appears true to say that these are the factors which matter

most to customers. Similarly, it is true to say that Bus Co is leading as regards punctuality, being 4 percentage points ahead of Prime and Express on this criterion. However, given that Express also has the same level of satisfaction as regards offering value for money, Bus Co is only leading ahead of Prime on this criterion, not ahead of Express. Therefore, whilst it can say that it is the leader on punctuality, it can only say that it is the joint leader on value for money.

(c) VFM

'Efficiency' focuses on the relationship between inputs and outputs, considering whether the maximum output is being achieved for the resources used.

Performance measure:
Occupancy rate of buses
Utilisation rate for buses (utilisation rate = hours on the road/total hours available)
Utilisation rate for drivers

(Many others could be given too but only one was asked for.)

'Effectiveness' focuses on the relationship between an organisation's objectives and outputs, considering whether the objectives are being met.

Possible performance measures:
Percentage of customers satisfied with cleanliness of buses
Percentage of carbon emissions relative to target set

(Many others could be given too but only one was asked for.)

3 (a) Variance calculations

Mix variance
Per question, total g of materials per standard batch = 610 g.
Therefore standard quantity to produce 950 units = 950 x 610 g = 579·5 kg
Per question, actual total kg of materials used to produce 950 units = 570·5 kg

Material		Actual quantity in standard mix	Actual quantity in actual mix	Variance	Standard cost per kg	Variance
		kg	kg	kg	$	$
White flour	570·5 x 450/610 =	420·86	408·5	12·36	1·80	22·25
Wholegrain flour	570·5 x 150/610 =	140·29	152	(11·71)	2·20	(25·76)
Yeast	570·5 x 10/610 =	9·35	10	(0·65)	20	(13)
		570·5	570·5	20·5		(16·51)A

Yield variance

Material		Standard quantity in standard mix	Actual quantity in standard mix	Variance	Standard cost per kg	Variance
		kg	kg	kg	$	$
White flour	450/610 x 579·5 =	427·5	420·86	6·64	1·80	11·95
Wholegrain flour	150/610 x 579·5 =	142·5	140·29	2·21	2·20	4·86
Yeast	10/610 x 579·5 =	9·5	9·35	0·15	20	3
		579·5	570·5			19·81F

Alternative yield calculation

570·5 kg should yield (÷ 0·61 kg) = 935·25 loaves
570·5 kg did yield = 950 loaves
Difference 14·75 F
Valued at standard material cost = 14·75F x $1·34 = $19·77F

(b) Material yield variance

Three reasons why an adverse material yield variance may arise:

– The mix may not be removed completely out of the machine, leaving some mix behind.
– Since the loaves are made by hand, they may be made slightly too large, meaning that fewer loaves can be baked.
– Errors or changes in the mix may cause some loaves to be sub-standard and therefore rejected by the quality inspector.
– The loaves might be baked at the wrong temperature and therefore be rejected by the quality inspector.

Note: *Many more reasons could be given.*

4 **(a)** Weighted average C/S ratio

Weighted average contribution to sales ratio (WA C/S ratio) = total contribution/total sales revenue.

Per unit:		T		C		R
	$	$	$	$	$	$
Selling price		1,600		1,800		1,400
Material	(430)		(500)		(360)	
Variable labour (40%)	(88)		(96)		(76)	
Variable overheads	(110)		(120)		(95)	
Total variable costs		(628)		(716)		(531)
Contribution		972		1,084		869
Sales units		420		400		380
Total sales revenue		$672,000		$720,000		$532,000
Total contribution		$408,240		$433,600		$330,220

WA C/S ratio = ($408,240 + $433,600 + $330,220)/($672,000 + $720,000 + $532,000)
= $1,172,060/$1,924,000 = 60·92%.

(b) Margin of safety

Margin of safety = budgeted sales – breakeven sales
Budgeted sales revenue = $1,924,000
Fixed labour costs = {(420 x $220) + (400 x $240) + (380 x $190)} x 0·6 = $156,360k.
Therefore total fixed costs = $156,360 + $55,000 = $211,360.

Breakeven sales revenue = fixed costs/weighted average C/S ratio
= $211,360/60·92% = $346,947

Therefore margin of safety = $1,924,000 – $346,947 = $1,577,053.

(c) Multi-product breakeven chart
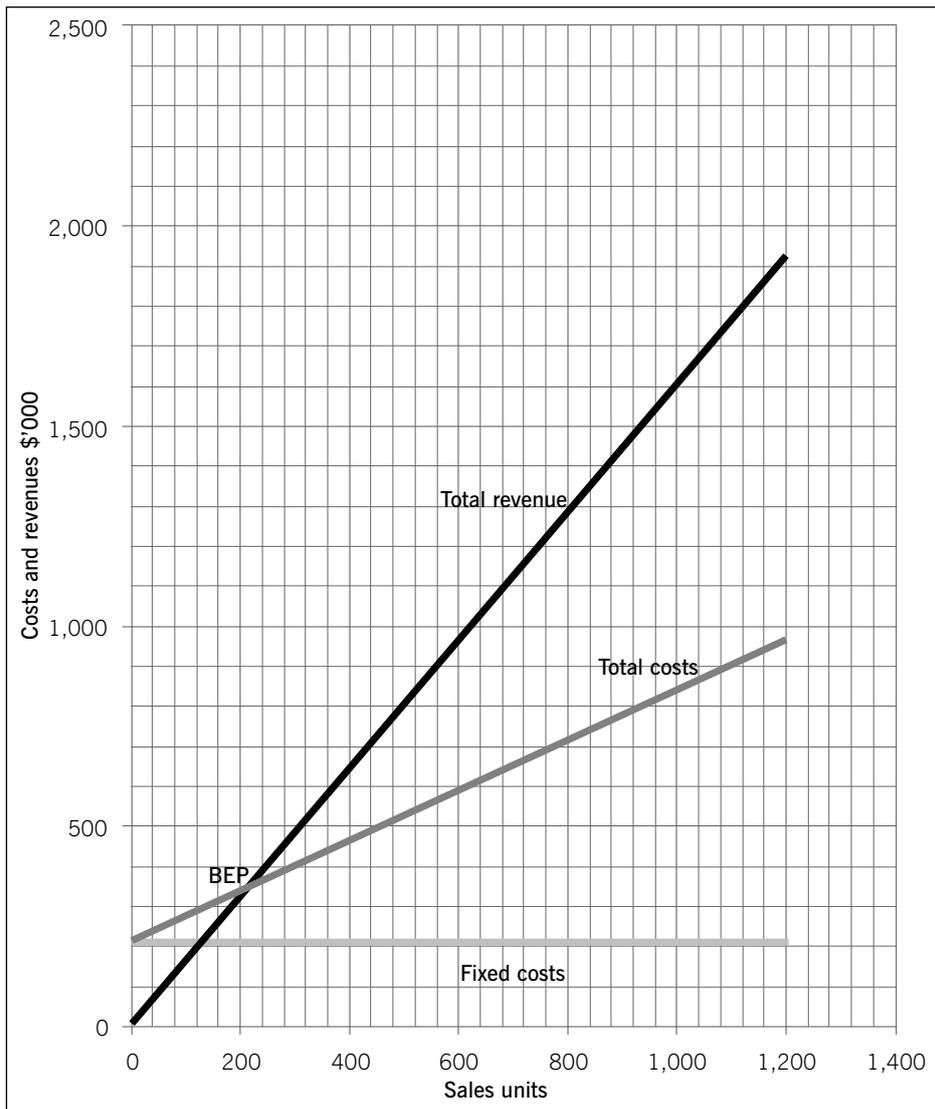
Workings

Total revenue = $1,924,000

Total variable costs = $1,924,000 – $1,172,060 = $751,940

Therefore total costs = $211,360 + $751,940 = $963,300

(d) BEP if products sold in order of profitability

If the more profitable products are sold first, this means that the company will cover its fixed costs more quickly. Consequently, the breakeven point will be reached earlier, i.e. fewer sales will need to be made in order to break even. So, the breakeven point will be lower.

5 **(a)** Division F
Controllable profit = $2,645k.
Total assets less trade payables = $9,760k + $2,480k – $2,960k = $9,280k.
ROI = 28·5%.

Division N
Controllable profit = $1,970k.
Total assets less trade payables = $14,980k + $3,260k – $1,400k = $16,840k.
ROI = 11·7%.

In both calculations controllable profit has been used to reflect profit, rather than net profit. This is because the managers do not have any control over the Head Office costs and responsibility accounting deems that managers should only be held responsible for costs which they control. The same principle is being applied in the choice of assets figures being used. The current assets and current liabilities figures have been taken into account in the calculation because of the fact that the managers have full control over both of these.

(b) Bonus

Bonus to be paid for each percentage point = $120,000 x 2% = $2,400.
Maximum bonus = $120,000 x 0·3 = $36,000.

Division F: ROI = 28·5% = 18 whole percentage points above minimum ROI of 10%.
18 x $2,400 = $43,200.
Therefore manager will be paid the maximum bonus of $36,000.

Division N: ROI = 11·7% = 1 whole percentage point above minimum.
Therefore bonus = $2,400.

(c) Discussion

– The manager of Division N will be paid a far smaller bonus than the manager of Division F. This is because of the large asset base on which the ROI figure has been calculated. Total assets of Division N are almost double the total assets of Division F. This is largely attributable to the fact that Division N invested $6·8m in new equipment during the year. If this investment had not been made, net assets would have been only $10·04m and the ROI for Division N would have been 19·62%. This would have led to the payment of a $21,600 bonus (9 x $2,400) rather than the $2,400 bonus. Consequently, Division N's manager is being penalised for making decisions which are in the best interests of his division. It is very surprising that he did decide to invest, given that he knew that he would receive a lower bonus as a result. He has acted totally in the best interests of the company. Division F's manager, on the other hand, has benefitted from the fact that he has made no investment even though it is badly needed. This is an example of sub-optimal decision making.

– Division F's trade payables figure is much higher than Division N's. This also plays a part in reducing the net assets figure on which the ROI has been based. Division F's trade payables are over double those of Division N. In part, one would expect this because sales are over 50% higher (no purchases figure is given). However, it is clear that it is also because of low cash levels at Division F. The fact that the manager of Division F is then being rewarded for this, even though relationships with suppliers may be adversely affected, is again an example of sub-optimal decision making.

– If the controllable profit margin is calculated, it is 18·24% for Division F and 22·64% for Division N. Therefore, if capital employed is ignored, it can be seen that Division N is performing better. ROI is simply making the division's performance look worse because of its investment in assets. Division N's manager is likely to feel extremely demotivated by his comparatively small bonus and, in the future, he may choose to postpone investment in order to increase his bonus. Managers not investing in new equipment and technology will mean that the company will not keep up with industry changes and affect its overall future competitiveness.

– To summarise, the use of ROI is leading to sub-optimal decision making and a lack of goal congruence, as what is good for the managers is not good for the company and vice versa. Luckily, the manager at Division N still appears to be acting for the benefit of the company but the other manager is not. The fact that one manager is receiving a much bigger bonus than the other is totally unfair here and may lead to conflict in the long run. This is not good for the company, particularly if there comes a time when the divisions need to work together.

Section B   *Marks*

1 **(a)** Target costing
         Each step   1
                                                                                                              ――
                                                                                                               3
                                                                                                              ――

     (b) Target costing
         Benefits – per point   1
         Difficulties – per point   1
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                                                                                                               7
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         Total marks   **10**
                                                                                                              ――

2 **(a)** Calculations   2
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     (b) Accuracy of statement
         First part untrue, Express has higher %age   1
         Correct re what customers value   1
         Correct re punctuality   1
         Incorrect re leader   1
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                                                                                                               4
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     (c) Efficiency and effectiveness
         Definition of efficiency   1
         Performance measure for efficiency   1
         Definition of effectiveness   1
         Performance measure for effectiveness   1
                                                                                                              ――
                                                                                                               4
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         Total marks   **10**
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3 **(a)** Calculations
         Mix variance   3·5
         Yield variance   3·5
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                                                                                                               7
                                                                                                              ――

     (b) Reasons
         Each reason   1
                                                                                                              ――
                                                                                                               3
                                                                                                              ――
         Total marks   **10**
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4 (a) Weighted average C/S ratio

Variable labour cost	1
Total revenue	1
Total contribution	1
WA C/S ratio	1
	4

(b) Margin of safety

Fixed costs	1
Breakeven sales	1
Margin of safety	1
	3

(c) Breakeven chart

Workings for chart	2
Plotting total cost line	1
Plotting total revenue line	1
Labelling	1
Correct BEP	1
	6

(d) Discussion

Per point	1
Maximum	2
Total marks	**15**

5 (a) ROI

Div F

Using correct profit figure	0·5
Adding up correct assets	0·5
Correct ROI	0·5

Div N

Using correct profit figure	0·5
Adding up correct assets	0·5
Correct ROI	0·5
Explaining choice of profit figure	1
Explaining choice of asset figure	1
	5

(b) Bonus

Calculation of the $2,400	0·5
Calculation of the maximum of $36,000	0·5
Calculation of percentage point excess for F	0·5
Calculation of the $43,600 for F, restricted	0·5
Calculation of percentage point excess for N	0·5
Calculation of the $2,400 for N	0·5
	3

(c) Discussion

Maximum marks per point	2
	7
Total marks	**15**