Performance Pillar

P2 – Performance Management

Examiner's Answers

SECTION A

Answer to Question One

(a) (i)

One of the reasons why the chart does not provide a useful summary of the budget data is inherent in all multi-product situations:

- The need to assume that the products will be sold in the order of their contribution to sales ratio (either lowest or highest first). Such an assumption is unrealistic – assuming that the company makes all of its products available then it is more likely that a mix of products will be sold each month.

Another reason relates specifically to the data in this scenario:

- The chart does not recognise the effect of products A & E being complementary and sales of one of the product do not occur without sales of the other. In fact because of this the results of products A & E should be combined as a single product. This would then mean that Product B had the highest contribution to sales ratio.

(ii)

Point X on the chart shows the highest value of sales at which break-even will occur, assuming that the budgeted sales value is the maximum achievable for each of the products.

(b)

The budgeted sales and resulting contribution are:

	Sales	Contribution
	$000	$000
A	400	180
B	180	54
C	1,400	350
D	900	180
E	200	(20)
Total	3,080	744

The overall budgeted contribution to sales ratio is $744 / $3080 = 24.156%

Therefore, the budgeted breakeven revenue using the budgeted sales mix is:

$300/ 0.24156 = $1,241,928

Answer to Question Two

(a)

Costs of quality conformance are the costs incurred by an organisation in attempting to ensure that their quality standards are met before the product or service is completed.

In contrast, costs of quality non-conformance are costs that occur as a result of quality failure, either because they require the product / service to be re-worked (Internal failure cost) or because of the damage they cause to the business as a result of supplying a poor quality item to a customer (external failure cost).

(b)

HT is operating in a market where consumers consider price and quality as the main factors when making the buying decision. This is not unusual but highlights the need for HT to understand the profile of its customers – to what extent are they prepared to pay for high quality, in other words, there is a trade-off between price and quality. The more that HT spends on developing a quality product, the greater will be its costs and hence its product selling price will need to reflect this additional cost in order for HT to be profitable. HT will need to decide whether to follow a low price, low quality strategy or a high price, high quality strategy, or to follow a strategy that lies somewhere between these two extremes.

(c)

Kaizen principles encourage gradual and continuous improvement by making small changes in the product or the method of operations. HT operates in a market where products have an extremely short life cycle. If this life cycle could be extended then this would result in greater profitability for HT. Kaizen principles could achieve this by gradually improving product quality without any increase in price for example by making small changes to the components being used in its products.

Answer to Question Three

(a)

Activity	Cost driver rate	Working
Sales visits	$250/visit	$50,000/200
Order processing	$100/order	$70,000/700
Normal delivery	$500/delivery	$120,000/240
Urgent deliveries	$2,000/urgent delivery	$60,000/30

	B	D
	$000	*$000*
Costs		
Sales visits	6	3
Orders processing	7.5	2
Normal deliveries	22.5	7.5
Urgent deliveries	10	0
Total costs	46	12.5
Factory contribution	75	40.5
Profit	**29**	**28**

(b)

ST could improve its profitability by:

- reflecting the additional costs caused by customer behaviour in the prices it charges; or
- by changing the behaviour of its customers, particularly in relation to urgent deliveries; or
- by considering how it could change its operations to reduce the costs of these activities

Answer to Question Four

(a)

If the store managers overstate their budgeted costs and resource requirements then the following planning and decision making problems could arise within CW:

- It may cause CW to order excess items which would result in higher inventory holding costs as the items remain unused, or result in inefficient handling / theft of items as the store managers try to prove that their budget was correct and not draw attention to themselves by having favourable variances in their performance reports.

- It may cause CW to recruit and train additional employees in order to meet the budgeted resource requirements. This will lead to higher than necessary staff levels, higher payroll and employee costs and may lead to future redundancies or inefficient operations as the store managers try to prove that their budget was correct and not draw attention to themselves by having favourable variances in their performance reports.

- It may cause CW to invest in new additional equipment which is not really needed and which would therefore be a drain on the cash resources of CW. This could prevent them from investing in other areas of the business that would represent a more profitable use of the money available.

- It may cause CW to borrow funds in order to fund the new capital investment or the additional working capital in the business. This funding would not really be required but if taken would cause CW to incur additional financing costs.

(b)

Behavioural problems could arise from the removal of the excess costs and resources from the managers' budgets if it is removed without agreement from the managers. There are two main difficulties here:

- If the manager agrees that the excess can be removed this is an admission that their original budget was wrong and as a result their integrity as a manager is questioned. They are vulnerable to the accusation that they do not understand their own store and as a result their ability to be a manager is also questioned.

- If the excesses are removed without the manager's agreement then there is the risk that the manager will disown their budget and as a result they will not be motivated towards achieving it. They may even take operational decisions that lead to adverse variances when measured against the amended budget to try to ensure that the performance reports show that their original budget was correct.

Answer to Question Five

(a)

The average time per batch required for 6 batches assuming a 90% learning curve is:

$Y = ax^b$

$Y = 400 \times 6^{-0.1520} = 304.636$ hours

Revised standard hours for 6 batches = 304.636 x 6 = 1,827.816 hours
Original standard: 2,400 hours x \$7 = \$16,800

Revised standard: 1,827.816 hours x \$7 = \$12,794.71

Planning variance caused by learning effect = \$4,005.29 Favourable
Operational efficiency variance = \$12,794.71 - \$13,650 = \$855.29 Adverse

(b)

Standard costing is a system of cost control that operates by comparing actual performance against a target. The target comprises a resource quantity and a price per unit of resource so that the difference that occurs can be analysed between price ad efficiency.
Target costing is a system that applies to organisations that are forced to accept the market price for a product or service. The target cost is determined by referring to the profit target that is required in relation to that selling price to determine the cost that needs to be achieved in order to meet that profit target. Therefore in this context a target cost is the cost to be achieved to meet a desired result.

Therefore standard costing is a cost control technique whereas target costing is a technique used in determining whether an organisation can compete in the market for a particular product or service.

Answer to Question Six

(a)

Product K

Selling Price/unit ($)	100	85	80	75	
Contribution / unit ($)	62	47	42	37	
Demand (units)	600	800	1200	1400	
Total Contribution ($)	37200	37600	50400	51800	

Capacity remaining to produce L				600	standard hours

Product L

Maximum Production	480	units

In order to maximise contribution during its maturity stage product K should be sold for $75 per unit. As a result product L should be sold for $126 per unit during its growth stage.

(b)

Penetration pricing is based on a much lower selling price, but as a result the demand for the product is much higher so that the volume of sales each making a profit will be used to recover the costs of developing the product. This approach is recommended when the product is similar to others available in the market, i.e. it is not unique.

In contrast, skimming is a strategy that charges a high unit price thus making significant profit per unit which can be used to recover the costs of developing the product. This approach requires that the product be unique and in high demand by those that can afford to pay for it, because the level of demand will be relatively low. Product M is a suitable product for a skimming strategy because it is highly innovative and is expected to change the market for this type of product.

(c)

The company is launching a unique product which will be demanded by high worth customers who are proud to be amongst the first to own such a unique product. This is exactly the type of product for which a skimming pricing policy is appropriate.

Unit Production Costs
Production costs are also likely to change throughout the product's life cycle. Initially production costs may be high due to low volume of activity and the level of fixed costs being incurred to provide the production facility. In addition the labour and related costs are likely to be high as the employees have not yet become experienced in making the product.

Growth production cost
In the growth stage, production costs per unit are likely to reduce due to economies of scale and because of the impact of the learning and experience curves. The extent of the decrease and its speed will depend on the complexity of the manufacturing process, its similarity to previous products, the experience and level of retention of the workforce.

Maturity production cost
In the maturity stage production costs per unit are likely to remain fairly constant because the learning period will have ended, the workforce will be experienced in producing the products and in handling the raw materials and operating the machinery.

Decline production cost
In the decline stage production costs per unit may increase due to lower volumes and due to the workforce being less interested in a declining product and trying to learn new skills in relation to other products

Selling Prices
The initial price will be high as this will quickly recover the development costs of the product. The high worth customers will not be deterred from buying the product as it will be sold on the basis of its uniqueness rather than its price.

Growth price
Competitors will be attracted to the product by its high price and will seek to compete with it by introducing their own version of the product at much lower development costs (by reverse engineering the product) so it is important for the company to reduce the price during the growth stage of the product's life cycle. There may be many price reductions during this stage so that the product gradually becomes more affordable to lower social economic groups.

Maturity price
As the product enters the maturity stage the price will need to be lowered further, though a normal contribution ratio would continue to be earned.

Decline price
When the product enters the decline stage the price will be lowered to marginal cost or even lower in order to sell off inventories of what is now an obsolete product as it has been replaced by a more technologically advanced item.

Answer to Question Seven

(a) (i)

		ROCE (%)
X Limited -	Production	210/800 = 26.25%
	Consultancy	140/2,000 = 7.0%
Y Limited		370/4,000 = 9.25%

		Operation Profit (%)	Asset Turnover
X Limited -	Production	210/710 = 29.6%	710/800 = 0.89
	Consultancy	140/1,260 = 11.1%	1,260/2,000 = 0.63
Y Limited		370/750 = 49.3%	750/4,000 = 0.19

The above calculations show that although both divisions of X Limited and Y Limited are all profitable, the return on capital employed (ROCE) achieved by the Consultancy division of X Limited is far superior to that achieved by the other parts of the business. This is not uncommon because consultancy businesses require low capital investment as their profits are derived from investing in people of high quality that are not recorded as assets of a business.

The ROCE values of the Production division of X Limited and of Y Limited are not too dissimilar, though there are different reasons for this result. The Production division has low unit profitability, but is able to generate a high volume of sales relative to its capital employed whereas Y Limited has high unit profitability but generates much lower sales relative to its capital employed. This means that management need to focus on different areas of these business units in order to improve future ROCE.

(b) (i)

The present transfer pricing policy is leading to sub-optimal decision making within the Alpha group as shown by the example of the loss of an order due to its pricing by X Limited. If the transfer price of the components from Y Limited had been lower then the price offered by X Limited might have been low enough to win the order.

In addition the transfer price seems to have the effect of gaining profits for Y Limited at the expense of profits being recorded in the Production division of X Limited. Since Y Limited would have spare capacity without its sales to X Limited this is unfair and leads to friction between the managers of the group.

(ii)

Since Y Limited has some unsatisfied external demand it is correct that some items should be supplied internally at the market price, subject to any reduction for cost savings that arise on external sales (e.g. distribution costs, bad debt risk, currency risk etc).

The remainder of the supplies to X Limited should be on a variable cost basis (with perhaps a small additional sum as an incentive to Y Limited to produce the components).

The $400,000 of external sales by Y Limited represent 80% of the external market, so the unsatisfied external demand equals 20/80 x $400,000 = $100,000. It is therefore appropriate for these items to be sold to X Limited at the market price less (say) $10,000 = $90,000 to allow for the reduced costs and risks referred to above.

The remainder of the internal sales should be at variable cost. Y Limited's variable costs are 60% of $250,000 = $150,000 which is 20% of the sales value so the remaining $250,000 of

internal sales should be sold to X Limited for $250,000 x 20% = $50,000 plus an incentive of (say) $5,000 = $55,000.

This means that the total value of internal sales from Y Limited to X Limited would be $145,000.

(c)

There are potential tax implications because of the differing tax rates between the two countries. As a result there is a taxation cost/benefit of moving profits from one country to another by reason of the transfer pricing mechanism. Clearly tax authorities are very interested in preventing the loss of tax revenues by such actions.

In the case of the Alpha group the original transfer pricing policy resulted in lower profits in X Limited which are being taxed at a higher rate. The revised transfer prices result in greater amounts of profit being taxed at the higher rate so is unlikely to be challenged by the tax authorities of their present country. However, if Y Limited were to relocate, the new country's tax authorities may seek to argue that, with the revised transfer prices, the transaction is no longer an arm's length one because the transfer price is not equal to the external market price for the components. As a result the Alpha Group may find that it ends up paying tax in both countries.

The Senior Examiner for P2 Performance Management offers to future candidates and to tutors using this booklet for study purposes, the following background and guidance on the questions included in this examination paper.

Section A – Compulsory

Question One examines candidates' knowledge and understanding of multi-product breakeven scenarios and the charts used to depict them.

Question Two examines candidates' knowledge of quality costs, the relationship between price and quality and how this affects pricing decisions, and the use of kaizen principles in the context of the product life cycle.

Question Three examines candidates' ability to apply the principles of Activity Based Costing to Direct Customer Profitability Analysis.

Question Four examines candidates' understanding of budgetary slack and the problems that its inclusion may cause.

Question Five examines candidates' understanding of variance analysis and of the difference between standard costing and target costing.

Section B – Compulsory

Question Six examines candidates' knowledge and understanding of pricing decisions with scarce resources and multiple products in the context of the product life cycle.

Question Seven examines candidates' understanding of divisional performance appraisal and how it is affected by transfer pricing policy.