Answers

1 (a) Room nights per week

100% capacity: 120 rooms x 7 nights x 100% = 840 room nights per week
95% capacity: 120 rooms x 7 nights x 95% = 798 room nights per week
80% capacity: 120 rooms x 7 nights x 80% = 672 room nights per week

(b) Cleaning costs

$$\text{Variable element} = \frac{£3{,}520 - £3{,}016}{840 - 672} = £3 \text{ per room night}$$

Fixed element by substitution:
Total cost = Fixed cost + variable cost
£3,520 = Fixed cost + (840 x £3 per room night)
Fixed cost = £1,000

(c) Budgeted Profit statement for 95% capacity

	Accommodation	Restaurant	Total
	£	£	£
Sales (w1 and 2)	31,920	9,576	41,496
Variable costs			
Laundry (w3)	(1,596)		(1,596)
Cleaning variable (w4)	(2,394)		(2,394)
Food (w5)		(4,788)	(4,788)
Contribution	27,930	4,788	32,718
Traceable fixed costs			
Cleaning fixed	(1,000)		(1,000)
Staff wages	(3,000)	(2,000)	(5,000)
Traceable profit	£23,930	£2,788	26,718
Common costs			
Building maintenance			(2,000)
Management salaries			(1,500)
Operating profit			£23,218

Workings.
1. Accommodation sales = £33,600 x 95% = £31,920
2. Restaurant sales = £10,080 x 95% = £9,576
3. Laundry costs = variable cost = £1,680 x 95% = £1,596
4. Total cost at 95% capacity (798 room nights) = (798 x £3) = £2,394
5. Restaurant food costs = variable cost = £5,040 x 95% = £4,788

(d) Budget Variances

	Budget	Actual	Variance
Room Occupancy Level	95%	95%	
	£	£	£
Restaurant sales	9,576	6,100	3,476Adv
Restaurant costs:			
Food	(4,788)	(4,950)	162Adv
Wages	(2,000)	(2,050)	50Adv
Operating profit	£2,788	£(900)	£3,688Adv

Comments
The most significant variance is that for restaurant sales. It has several potential causes. The restaurant may not be attracting as many residents as assumed in the budget. Customers may be selecting lower price dishes (though this is not reflected in the food cost variance), or the restaurant may be failing to charge the budgeted price for meals. Whatever the cause this appears to be a major problem and a detailed investigation is needed.

The other two variances relate to restaurant costs and on first sight appear relatively insignificant. However, if the sales variances are caused by customers selecting lower price dishes, the food variance would be expected to be favourable. The small adverse variance could be disguising significant price or wastage problems.

(e) Zero-based budgeting

Zero-based budgeting (ZBB), as its name suggests, involves preparing a budget from a zero-base. In this case the hotel management would be told to assume that they had no budget allowance for particular activities and they would then be required to justify any expenditure in order for it to be included in the budget.

A ZBB exercise usually involves the following steps.

Step 1. Management prepare decision packages for the tasks performed by their departments. This would involve a detailed description of what the tasks involve, what they cost and how they contribute to organisational objectives. Decision packages might include alternative methods of performing tasks (for example, in-house provision or external suppliers) and different levels of service (using cleaning as an example, a base level package ensuring a minimum hygiene level or a superior level of cleaning that would give the hotel an excellent appearance).

Step 2. Junior and senior managers are then asked to rank decision packages against each other and decision packages in other areas in terms of their contribution to corporate objectives.

Step 3. Resources (in this case money) are then allocated to the selected decision packages.

The advantages of ZBB are:

- Identification and elimination of unnecessary expenditure. Activities that do not contribute toward organisational objectives will be discontinued.
- Identification of wasteful expenditure. Overspending on activities will be identified and budgets will be reduced accordingly.
- It challenges the status quo and encourages a questioning approach to activities and expenditure. In this way it is the ideal antidote for incremental budgeting.
- The documentation that ZBB requires provides an in depth appraisal of an organisation's activities.
- It provides a plan to work to (in service departments) if more funds become available.

(only two advantages were required)

2 (a) Controllable and traceable return on investment

Working 1

Controllable profit = sales – cash operating costs – depreciation on plant and machinery

= £7,500 – £3,600 – £300 = £3,600

Working 2

Controllable investment = plant and machinery + stock + debtors – creditors

= £13,200 + £1,200 + £1,400 – £1,400 = £14,400

$$\text{Controllable ROI} = \frac{\text{Controllable profit \%}}{\text{Controllable investment}}$$

$$= \frac{\text{(w1) £3,600}}{\text{(w2) £14,400}} = \mathbf{25\%}$$

Working 3

Traceable profit = sales – cash operating costs – depreciation on plant and machinery –depreciation on land and buildings

= £7,500 – £3,600 – £300 – £40= £3,560

Working 4

Traceable investment = fixed assets + current assets – current liabilities

= £15,200 + 3,100 – £1,400 = £16,900

$$\text{Traceable ROI} = \frac{\text{Traceable profit \%}}{\text{Traceable investment}}$$

$$= \frac{\text{(w3) £3,560}}{\text{(w4) £16,900}} = \mathbf{21\%}$$

(b) Traceable residual income

Traceable profit	3,560
Imputed interest charge Traceable investment x 15% £16,900 x 15%	(2,535)
Traceable Residual income	1,025

Residual income shows the return earned by a division, in excess of its required rate of return. The required rate of return is usually the division's cost of capital. In this case residual income is positive indicating that the division is performing well.

(c) Controllable and traceable return on investment

Controllable items are those that are under the control of divisional management. In the case of the Neeskens division, depreciation on land and buildings is excluded from the calculation of controllable profit as divisional managers are not in control of investment in land and buildings. In a similar way apportioned head office expenditure is not under the control of divisional managers. Cash and land and buildings are excluded from controllable investment as these items are controlled by head office.

Traceable items are those that can be traced directly to the division. In the profit and loss account all items apart from apportioned head office expenditure clearly relate to the division. All assets employed in the division can be traced to that division.

The distinction is important. Controllable profit can be used to assess the performance of divisional managers. This follows the principle of responsibility accounting, which states that managers should be assessed on the basis of items which they can control.

Traceable profit can be used to assess the performance of a division. It is important to remember that it is possible to have poor management performance in a well performing division, and vice versa.

(d) Advantages of residual income as a measure of divisional performance.

Residual income shows the absolute surplus earned by a division in excess of its owners' required rate of return. This has several advantages:

- It facilitates comparisons between divisions of different sizes. The division with the largest residual income will be the most attractive to owners as it makes the biggest contribution to their wealth.
- It avoids some of the dysfunctional aspects of return on investment. Managers whose performance is measured by residual income will want to invest in projects that offer a return greater than the division's cost of capital. This is not always the case with return on investment where managers may reject projects that earn a return greater than the cost of capital but less than existing return on investment.
- Residual income can be related to net present value (the generally accepted method of investment appraisal). In the long run companies that maximise residual income are likely to maximise net present value.

(only two advantages were required)

3 (a) Actual and budgeted profit.

Actual profit year ended 30/11/2006

	£ m
Actual contribution (w1)	112·5
Actual fixed overhead (w2)	(40·0)
Profit	72·5

Budgeted profit year ending 30/11/2007

	£ m
Budgeted contribution (w3)	90·0
Budgeted fixed overhead	(40·0)
Budgeted profit	50·0

Workings

W1 Contribution per unit= £129 – £9 – £30 = £90
Actual sales units = 1 m units x 100 ÷ 80 = 1·25 m units

Contribution = £90 x 1·25 m units =£112·5 m

W2 Total fixed overheads = 1 m budgeted units x £40 per unit = £40 m
Or 2 m budgeted hours x £20 per hour = £40 m.

W3 Contribution = £90 x 1 m units =£90 m

(b) (i) Revised budgeted profits

Price Reduction	£ m
Budgeted contribution (w4)	100·23
Budgeted fixed overhead	(40·00)
Budgeted profit	60·23

Advertising campaign	£ m
Budgeted contribution (w5)	108·00
Budgeted fixed overhead	(45·00)
Budgeted profit	63·00

Workings

W4 Contribution per unit = (£129 x 0·9) – £9 – £30 = £77·1
Budgeted contribution = £77·1 x 1 m units x 1·3 = £100·23 m.

W5 Budgeted contribution
£90 x 1 m units x 1·2 = £108 m.

(ii) Required Sales level

$$= \frac{\text{Target contribution}}{\text{Contribution per unit}} = \frac{\text{£45 m + £72·5 m}}{\text{£77·10 per unit}} = 1{\cdot}524 \text{ m units}$$

(c) Stratified random sampling and cluster sampling

(i) Stratified random sampling

This involves dividing the total population into strata or categories (for example age groups) and then taking random samples from each of the strata or categories.

Advantages.

- The selected sample will be representative of the population as a whole, as all strata will be represented.
- Inferences can be drawn about each stratum.
- Precision is increased, as variation between strata does not enter as a chance event. A random sample could miss an entire stratum.

(ii) Cluster sampling

This involves splitting the population into convenient groups and then selecting a number of groups at random. Every item in the sample is then investigated. For example people travelling on particular buses could be taken as representative of the travelling public in general. All the passengers on the selected buses would then be interviewed. This is a non-random sampling method.

Advantages.

- It is cheap to operate as the members of each cluster are all in one place, this is particularly useful if face to face interviews are required.
- Useful if a sampling frame does not exist (for example if you can't identify your potential population of customers to sample from).

(only one advantage of each method was required)

4 (a) Variance Investigation

Expected benefit of investigation	
Saved material costs £60,000 x 6 months x 70% =	252,000
Costs of the investigation	
Engineer's salaries (irrelevant)	
Parts	(10,000)
Lost sales	(160,000)
Saved direct material cost	45,000
Saved painting costs	7,000
Net benefit	£134,000

The investigation shows a net benefit of £134,000 and it should be carried out.

(b) Causes of usage variances

There are many potential causes of a direct material usage variance including:

- Inaccurate standard. If the standard is set badly efficient usage of materials will still result in a variance.
- Inaccurate recording of actual cost. Badly recorded actual cost can result in variances being reported.
- Quality of material. Material of a different quality to standard can result in favourable or adverse variances.
- Variations in wastage rates due to the quality of labour or badly calibrated machinery can result in usage variances.
- Theft of material can result in adverse variances.
- Errors in allocating material can result in the use of the wrong material and lead to variances.

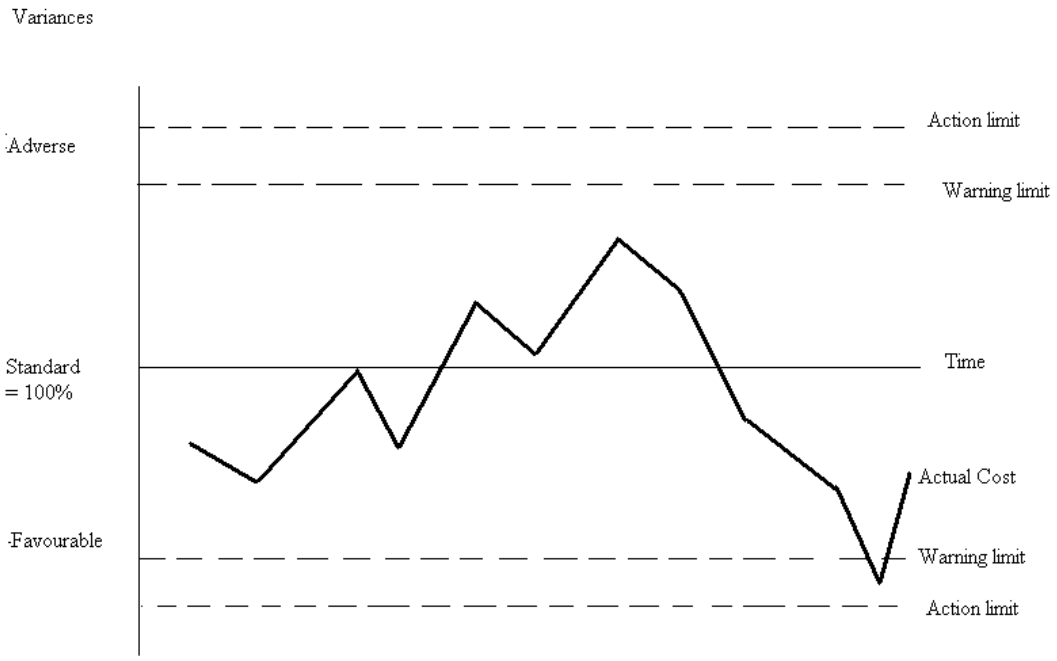
(only three causes were required)

(c) Control charts

When deciding whether to investigate a variance it is important to distinguish between variances that are caused by normal random variation in cost (those that occur even though the process is 'in control') and those that are caused by genuine problems (often referred to as the process being 'out of control').

Some costs are inherently variable (e.g. raw material costs where the grade of material varies from batch to batch) and standards can be viewed as representing an average cost. Small variances (adverse or favourable) can often be accounted for by normal random variation that occurs around this average. Larger variances are less likely to be explained by normal random variation and are more likely to suggest that the process is out of control.

Control charts provide a visual representation of variation of actual cost around standard.



A variance control chart

The above shows a variance control chart. Actual costs are plotted on the diagram as percentages of standard cost, as they occur. As long as the actual cost percentage remains within the warning limits no action is taken. These small variations from standard are assumed to be due to normal random variation. If actual costs move outside the warning limits it indicates a need for careful monitoring and outside the action limits indicates a need for corrective action.

Warning and action limits can be set on the basis of experience or on the basis of a standard normal distribution.

Control charts provide a useful visual representation of data and help in isolating out normal random (uncontrollable) variation in cost. They are only really useful for costs where an average can be established and their use is usually restricted to efficiency rather than expenditure variances.

ACCA Certified Accounting Technician Examination – Paper T7
Planning, Control and Performance Management **December 2006 Marking Scheme**

			Marks
1	**(a)**	One mark for each level, max	3
	(b)	Method	2
		Variable cost	1
		Fixed cost	1
			4
	(c)	Contribution	8
		Traceable profit	6
		Total profit	2
			16
	(d)	Two marks per variance, max	6
		Comments	3
			9
	(e)	ZBB explained	4
		Advantages, two each, max	4
			8
			40
2	**(a)**	Controllable profit	1
		Controllable investment	1
		Controllable ROI	1
		Traceable profit	1
		Traceable investment	1
		Traceable ROI	1
			6
	(b)	Imputed interest charge	1
		Residual income	1
		Explanation	2
			4
	(c)	Controllable explained	2
		Traceable explained	2
		Distinction	2
			6
	(d)	2 per advantage, max	4
			20

3	**(a)**	Contribution per unit	2
		Total fixed costs	2
		Actual profit	1
		Budgeted profit	1
			6
	(b)	**(i)** New contribution per unit	2
		New fixed cost	1
		Budgeted profits	1
			4
		(ii) Method	2
		Correct number of units	2
			4
	(c)	Each definition 2	4
		Advs 1 each max	2
			6
			20
4	**(a)**	Expected material cost savings	2
		Excluding engineer's salary	1
		Parts	1
		Lost sales	1
		Saved material cost	1
		Opportunity cost labour	2
		Decision	1
			9
	(b)	1 mark per cause, max	**3**
	(c)	Diagram	
		Axes	2
		Warning limits	1
		Action (control) limits	1
		Explanation	
		In control	2
		Out of control	2
			8
			20