

Fundamentals Level – Skills Module

Performance Management

Specimen Exam applicable from
December 2014



Time allowed

Reading and planning: 15 minutes

Writing: 3 hours

This paper is divided into two sections:

Section A – ALL TWENTY questions are compulsory and MUST be attempted

Section B – ALL FIVE questions are compulsory and MUST be attempted

Formulae Sheet is on page 12.

Do NOT open this paper until instructed by the supervisor.

During reading and planning time only the question paper may be annotated. You must NOT write in your answer booklet until instructed by the supervisor.

This question paper must not be removed from the examination hall.

The Association of Chartered Certified Accountants

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Section A – ALL TWENTY questions are compulsory and MUST be attempted

Please use the space provided on the inside cover of the Candidate Answer Booklet to indicate your chosen answer to each multiple choice question.

Each question is worth 2 marks.

1 The following statements have been made about different types of standards in standard costing systems:

- (1) Basic standards provide the best basis for budgeting because they represent an achievable level of productivity.
- (2) Ideal standards are short-term targets and useful for day-to-day control purposes.

Which of the above statements is/are true?

- A** 1 only
- B** 2 only
- C** Neither 1 nor 2
- D** Both 1 and 2

2 The following statements have been made about management information systems:

- (1) They are designed to report on existing operations
- (2) They have an external focus

Which of the above statements is/are true?

- A** 1 only
- B** 2 only
- C** Neither 1 nor 2
- D** Both 1 and 2

3 The following statements have been made about zero based budgeting:

- (1) Employees will focus on eliminating wasteful expenditure
- (2) Short-term benefits could be emphasised over long-term benefits

Which of the above statements is/are true?

- A** 1 only
- B** 2 only
- C** Neither 1 nor 2
- D** Both 1 and 2

4 The following statements have been made about changing budgetary systems:

- (1) The costs of implementation may outweigh the benefits
- (2) Employees will always welcome any new system which improves planning and control within the organisation

Which of the above statements is/are true?

- A** 1 only
- B** 2 only
- C** Neither 1 nor 2
- D** Both 1 and 2

- 5 Tech World is a company which manufactures mobile phone handsets. From its past experiences, Tech World has realised that whenever a new design engineer is employed, there is a learning curve with a 75% learning rate which exists for the first 15 jobs.

A new design engineer has just completed his first job in five hours.

Note: At the learning rate of 75%, the learning factor (b) is equal to -0.415 .

How long would it take the design engineer to complete the sixth job?

- A 2.377 hours
- B 1.442 hours
- C 2.564 hours
- D 5 hours

- 6 The following are types of management accounting techniques:

- (i) Flow cost accounting
- (ii) Input/output analysis
- (iii) Life-cycle costing
- (iv) Activity based costing

Which of the above techniques could be used by a company to account for its environmental costs?

- A (i) only
- B (i) and (ii) only
- C (i), (ii) and (iii) only
- D All of the above

- 7 A company makes a single product which it sells for \$2 per unit.

Fixed costs are \$13,000 per month.

The contribution/sales ratio is 40%.

Sales revenue is \$62,500.

What is the margin of safety (in units)?

- A 15,000
- B 16,250
- C 30,000
- D 31,250

- 8 The following statements have been made about the balanced scorecard:

- (1) It focuses solely on non-financial performance measures
- (2) It looks at both internal and external matters concerning the organisation

Which of the above statements is/are true?

- A 1 only
- B 2 only
- C Neither 1 nor 2
- D Both 1 and 2

- 9 A company manufactures a product which requires four hours per unit of machine time. Machine time is a bottleneck resource as there are only ten machines which are available for 12 hours per day, five days per week. The product has a selling price of \$130 per unit, direct material costs of \$50 per unit, labour costs of \$40 per unit and factory overhead costs of \$20 per unit. These costs are based on weekly production and sales of 150 units.

What is the throughput accounting ratio (to 2 decimal places)?

- A 1.33
- B 2.00
- C 0.75
- D 0.31

- 10 S Company is a manufacturer of multiple products and uses target costing. It has been noted that Product P currently has a target cost gap and the company wishes to close this gap.

Which of the following may be used to close the target cost gap for product P?

- A Use overtime to complete work ahead of schedule
- B Substitute current raw materials with cheaper versions
- C Raise the selling price of P
- D Negotiate cheaper rent for S Company's premises

- 11 The following are all types of costs associated with management information.

- (i) Use of bar coding and scanners
- (ii) Payroll department's processing of personnel costs
- (iii) Completion of timesheets by employees

Which of the above are examples of direct data capture costs?

- A (i) only
- B (i) and (ii) only
- C (i) and (iii) only
- D All of the above

- 12 A company has entered two different new markets.

In market A, it is initially charging low prices so as to gain rapid market share while demand is relatively elastic.

In market B, it is initially charging high prices so as to earn maximum profits while demand is relatively inelastic.

Which price strategy is the company using in each market?

- A Penetration pricing in market A and price skimming in market B
- B Price discrimination in market A and penetration pricing in market B
- C Price skimming in market A and penetration pricing in market B
- D Price skimming in market A and price discrimination in market B

- 13** Highly Co manufactures two products, X and Y, and any quantities produced can be sold for \$60 per unit and \$25 per unit respectively.

Variable costs per unit of the two products are as follows:

	Product X	Product Y
	\$	\$
Materials (at \$5 per kg)	15	5
Labour (at \$6 per hour)	24	3
Other variable costs	6	5
Total	<u>45</u>	<u>13</u>

Next month, only 4,200 kg of material and 3,000 labour hours will be available. The company aims to maximise its profits each month.

The company wants to use the linear programming model to establish an optimum production plan. The model considers 'x' to be number of units of product X and 'y' to be the number of units of product Y.

Which of the following objective functions and constraint statements (relating to material and labour respectively) is correct?

	Objective function	Material constraint	Labour constraint
A	$60x + 25y$	$3x + y \leq 4,200$	$4x + 0.5y \leq 3,000$
B	$15x + 12y$	$3x + y \geq 4,200$	$4x + 0.5y \geq 3,000$
C	$15x + 12y$	$3x + y \leq 4,200$	$4x + 0.5y \leq 3,000$
D	$60x + 25y$	$3x + y \geq 4,200$	$4x + 0.5y \geq 3,000$

- 14** The following are some of the areas which require control within a division:

- (i) Generation of revenues
- (ii) Investment in non-current assets
- (iii) Investment in working capital
- (iv) Apportioned head office costs

Which of the above does the manager have control over in an investment centre?

- A** (i), (ii) and (iii) only
- B** (ii), (iii) and (iv) only
- C** (i), (ii) and (iv) only
- D** All of the above

- 15** A company has received a special order for which it is considering the use of material B which it has held in its inventory for some time. This inventory of 945 kg was bought at \$4.50 per kg. The special order requires 1,500 kg of material B. If the inventory is not used for this order, it would be sold for \$2.75 per kg. The current price of material B is \$4.25 per kg.

What is the total relevant cost of material B for the special order?

- A** \$4,957.50
- B** \$6,375
- C** \$4,125
- D** \$6,611.25

16 To produce 19 litres of product X, a standard input mix of 8 litres of chemical A and 12 litres of chemical B is required. Chemical A has a standard cost of \$20 per litre and chemical B has a standard cost of \$25 per litre.

During September, the actual results showed that 1,850 litres of product X were produced, using a total input of 900 litres of chemical A and 1,100 litres of chemical B (2,000 litres in total).

The actual costs of chemicals A and B were at the standard cost of \$20 and \$25 per litre respectively.

It was expected that an actual input of 2,000 litres would yield an output of 1,900 litres (95%). The actual yield for September was only 1,850 litres, which was 50 litres less than expected.

For the total materials mix variance and total materials yield variance, was there a favourable or adverse result in September?

- A** The total mix variance was adverse and the total yield variance was favourable
- B** The total mix variance was favourable and the total yield variance was adverse
- C** Both variances were adverse
- D** Both variances were favourable

17 The following are all types of control within an organisation:

- (i) Logical access controls
- (ii) Database controls
- (iii) Hierarchical passwords
- (iv) Range checks

Which of the above controls help to ensure the security of highly confidential information?

- A** (i) and (ii) only
- B** (i) and (iii) only
- C** (i), (ii) and (iii) only
- D** All of the above

18 A business makes two components which it uses to produce one of its products. Details are:

	Component A	Component B
Per unit information:	\$	\$
Buy in price	14	17
Material	2	5
Labour	4	6
Variable overheads	6	7
General fixed overheads	4	3
Total absorption cost	16	21

The business wishes to maximise contribution and is considering whether to continue making the components internally or buy in from outside.

Which components should the company buy in from outside in order to maximise its contribution?

- A** A only
- B** B only
- C** Both A and B
- D** Neither A nor B

19 The following costs arise in relation to production of a new product:

- (i) Research and development costs
- (ii) Design costs
- (iii) Testing costs
- (iv) Advertising costs
- (v) Production costs

In calculating the lifetime costs of the product, which of the above items would be EXCLUDED?

- A** (i), (ii), and (iii) only
- B** (ii) and (iii) only
- C** (iv) and (v) only
- D** None of the above

20 The selling price of Product X is set at \$550 for each unit and sales for the coming year are expected to be 800 units. A return of 30% on the investment of \$500,000 in Product X will be required in the coming year.

What is the target cost for each unit of Product X?

- A** \$385
- B** \$165
- C** \$187.50
- D** \$362.50

(40 marks)

Section B – ALL FIVE questions are compulsory and MUST be attempted

1 Brace Co is split into two divisions, A and B, each with their own cost and revenue streams. Each of them is managed by a divisional manager who has the power to make all investment decisions within the division. The cost of capital for both divisions is 12%. Historically, investment decisions have been made by calculating the return on investment (ROI) of any opportunities and at present, the return on investment of each division is 16%.

A new manager who has recently been appointed in division A has argued that using residual income to make investment decisions would result in 'better goal congruence' throughout the company.

Each division is currently considering the following separate investments:

	Division A	Division B
Capital required for investment	\$82.8 million	\$40.6 million
Sales generated by investment	\$44.6 million	\$21.8 million
Net profit margin	28%	33%

Required:

- (a) Calculate the return on investment for each of the two divisions. (2 marks)
- (b) Calculate the residual income for each of the two divisions. (4 marks)
- (c) Comment on the results, taking into consideration the manager's views about residual income. (4 marks)

(10 marks)

2 Cement Co is a company specialising in the manufacture of cement, a product used in the building industry. The company has found that when weather conditions are good, the demand for cement increases since more building work is able to take place. Cement Co is now trying to work out the level of cement production for the coming year in order to maximise profits. The company has received the following estimates about the probable weather conditions and corresponding demand levels for the coming year:

Weather	Probability	Demand
Good	25%	350,000 bags
Average	45%	280,000 bags
Poor	30%	200,000 bags

Each bag of cement sells for \$9 and costs \$4 to make. If cement is unsold at the end of the year, it has to be disposed of at a cost of \$0.50 per bag. Cement Co has decided to produce at one of the three levels of production to match forecast demand. It now has to decide which level of cement production to select.

Required:

- (a) Construct a pay-off table to show all the possible profit outcomes. (8 marks)
- (b) Determine the level of cement production the company should choose, based on the decision rule of maximin. Show your calculations clearly and justify your decision. (2 marks)

(10 marks)

- 3 Brick by Brick (BBB) is a business which provides a range of building services to the public. Recently they have been asked to quote for garage conversions (GC) and extensions to properties (EX) and have found that they are winning fewer GC contracts than expected.

BBB has a policy to price all jobs at budgeted total cost plus 50%. Overheads are currently absorbed on a labour hour basis, resulting in a budgeted total cost of \$11,000 for each GC and \$20,500 for each EX. Consequently, the products are priced at \$16,500 and \$30,750 respectively.

The company is considering moving to an activity based cost approach. You are provided with the following data:

Overhead category	Annual overheads \$	Activity driver	Total number of activities per year
Supervisors	90,000	Site visits	500
Planners	70,000	Planning documents	250
Property related	240,000	Labour hours	40,000
Total	<u>400,000</u>		

A typical GC costs \$3,500 in materials and takes 300 labour hours to complete. A GC requires only one site visit by a supervisor and needs only one planning document to be raised. The typical EX costs \$8,000 in materials and takes 500 hours to complete. An EX requires six site visits and five planning documents. In all cases, labour is paid \$15 per hour.

Required:

- (a) Calculate the cost and the quoted price of a GC and an EX using activity based costing (ABC). (5 marks)
- (b) Assume that the cost of a GC falls by approximately 7% and the cost of an EX rises by approximately 2% as a result of a change to ABC.

Required:

Suggest possible pricing strategies for the two products which BBB sells and suggest one reason other than high prices for the current poor sales of the GC. (5 marks)

(10 marks)

- 4 Thatcher International Park (TIP) is a theme park and has for many years been a successful business, which has traded profitably. About three years ago, the directors decided to capitalise on their success and as a result they reduced the expenditure made on new thrill rides, reduced routine maintenance where possible (deciding instead to repair equipment when it broke down) and made a commitment to regularly increase admission prices. Once an admission price is paid, customers can use any of the facilities and rides for free. These steps increased profits considerably, enabling good dividends to be paid to the owners and bonuses to the directors.

The last two years of financial results are as follows:

	2011	2012
	\$'000	\$'000
Sales	5,250	5,320
<i>Less expenses:</i>		
Wages	2,500	2,200
Maintenance – routine	80	70
Repairs	260	320
Directors' salaries	150	160
Directors' bonuses	15	18
Other costs (including depreciation)	1,200	1,180
Net profit	<u>1,045</u>	<u>1,372</u>

Other information

	2011	2012
Book value of assets at start of year (\$'000)	13,000	12,000
Dividend paid (\$'000)	500	650
Number of visitors	150,000	140,000

TIP operates in a country where the average rate of inflation is around 1% per annum.

Required:

Assess the financial performance of TIP using the information given above.

Note: There are 5 marks available for calculations and 10 marks available for discussion.

(15 marks)

- 5** Truffle Co makes high quality, hand-made chocolate truffles which it sells to a local retailer. All chocolates are made in batches of 16, to fit the standard boxes supplied by the retailer. The standard cost of labour for each batch is \$6.00 and the standard labour time for each batch is half an hour. In November, Truffle Co had budgeted production of 24,000 batches; actual production was only 20,500 batches. 12,000 labour hours were used to complete the work and there was no idle time. All workers were paid for their actual hours worked. The actual total labour cost for November was \$136,800. The production manager at Truffle Co has no input into the budgeting process.

At the end of October, the managing director decided to hold a meeting and offer staff the choice of either accepting a 5% pay cut or facing a certain number of redundancies. All staff subsequently agreed to accept the 5% pay cut with immediate effect. At the same time, the retailer requested that the truffles be made slightly softer. This change was implemented immediately and made the chocolates more difficult to shape. When recipe changes such as these are made, it takes time before the workers become used to working with the new ingredient mix, making the process 20% slower for at least the first month of the new operation.

The standard costing system is only updated once a year in June and no changes are ever made to the system outside of this.

Required:

- (a) Calculate the following variances for Truffle Co:**

- (i) Labour rate planning variance**
- (ii) Labour rate operational variance**
- (iii) Labour efficiency planning variance**
- (iv) Labour efficiency operational variance** (8 marks)

- (b) Assess the performance of the production manager for the month of November.** (7 marks)

(15 marks)

Formulae Sheet

Learning curve

$$Y = ax^b$$

Where Y = cumulative average time per unit to produce x units

a = the time taken for the first unit of output

x = the cumulative number of units produced

b = the index of learning ($\log LR / \log 2$)

LR = the learning rate as a decimal

Demand curve

$$P = a - bQ$$

$$b = \frac{\text{change in price}}{\text{change in quantity}}$$

a = price when Q = 0

$$MR = a - 2bQ$$

End of Question Paper

Answers

Section A

1 C

2 A

3 D

4 A

5 B

$$Y = ax^b$$

Average time for six jobs: $5 \times 6^{-0.415} = 2.377$ hours

Total time required for six jobs = 6×2.377 hours = 14.262 hours

Average time for five jobs: $5 \times 5^{-0.415} = 2.564$ hours

Total time required for five jobs = 5×2.564 hours = 12.820 hours

Time required to perform the 6th job = Total time required for six jobs – total time required for five jobs.

Therefore, time required to perform the 6th job = 14.262 hours – 12.820 hours = 1.442 hours

6 D

7 A

Sales = \$62,500

Break even sales = $\$13,000/0.4 = \$32,500$

Margin of safety (sales revenue) = \$30,000

Margin of safety (units) $\$30,000/\$2 = 15,000$ units.

8 B

9 A

Return per factory hour = $(\$130 - \$50)/4$ hours = \$20

Factory costs per hour = $\$20 + \$40/4 = \$15$

TAR = $\$20/\$15 = 1.33$

10 B

11 C

12 A

13 C

Contribution for X = \$15 (\$60 – \$45)

Contribution for Y = \$12 (\$25 – \$13)

Objective function = $15x + 12y$

Constraints:

Material = $3x + y \leq 4,200$ (as X uses 3 kgs of material (15/5), Y uses 1 kg (5/5))

Labour = $4x + 0.5y \leq 3,000$ (as X uses 4 labour hrs (24/6), Y uses 0.5 hrs (3/6))

14 A

15 A

Cost of the quantity to be bought = $(1,500 - 945) \times \$4.25 = \$2,358.75$
Opportunity cost of quantity in hand = $945 \times \$2.75 = \$2,598.75$
Total relevant cost = $\$4,957.50$

16 B

Materials	AM		(w1) SM		(w2) SM	
	AQ	SP	AQ	SP	SQ	SP
A	900	18,000	800	16,000	779	15,580
B	1,100	27,500	1,200	30,000	1,168	29,200
Total		T1 = 45,500		T2 = 46,000		T3 = 44,780

SM: A = 0.4 and B = 0.6

(w1) AQSM: A = $0.4 \times 2,000 = 800$ litres; B = $0.6 \times 2,000 = 1,200$ litres

(w2) SQSM: A = $0.4 \times 1,947 = 779$ litres; B = $0.6 \times 1,947 = 1,168$ litres

Actual production of 1,850 litres requires an input of 1,947 litres ($1,850 \times 0.95$) in total of A and B. Therefore the SQ = 1,947 litres.

The Mix Variance is given by: $T2 - T1 = \$500$ Favourable

The Yield Variance is given by: $T3 - T2 = \$1,220$ Adverse

17 C

18 B

The marginal cost of making A is \$12 per unit and of making B is \$18 per unit. It is the marginal cost which is the relevant cost for the make or buy decision since the fixed costs will be incurred anyway. Therefore, it is cheaper to make A (\$12 marginal cost CF \$14 buy in cost) but it is cheaper to buy in B (\$17 buy in cost CF \$18 make cost).

19 D

20 D

Return: $\$500,000 \times 30\% = \$150,000$
Total sales revenue: $\$550 \times 800 = \$440,000$
Therefore total cost = $\$440,000 - \$150,000 = \$290,000$
Unit cost = $\$290,000/800 = \362.50

Section B

1 Brace Co

(a) Return on investment

Division A

Net profit = $\$44.6\text{m} \times 28\% = \12.488m

ROI = $\$12.488\text{m}/\$82.8\text{m} = 15.08\%$

Division B

Net profit = $\$21.8\text{m} \times 33\% = \7.194m

ROI = $\$7.194\text{m}/\$40.6\text{m} = 17.72\%$

(b) Residual income

Division A

Divisional profit = $\$12.488\text{m}$

Capital employed = $\$82.8\text{m}$

Imputed interest charge = $\$82.8\text{m} \times 12\% = \9.936m

Residual income = $\$12.488\text{m} - \$9.936\text{m} = \$2.552\text{m}$

Division B

Divisional profit = \$7.194m

Capital employed = \$40.6m

Imputed interest charge = \$40.6m x 12% = \$4.872m

Residual income = \$7.194 – \$4.872 = \$2.322m

(c) Comments

If a decision about whether to proceed with the investments is made based on ROI, it is possible that the manager of Division A will reject the proposal whereas the manager of Division B will accept the proposal. This is because each division currently has a ROI of 16% and since the Division A investment only has a ROI of 15.08%, it would bring the division's overall ROI down to less than its current level. On the other hand, since the Division B investment is higher than its current 16%, the investment would bring the division's overall ROI up.

When you consider what would actually be best for the company as a whole, you come to the conclusion that, since both investments have a healthy return, they should both be accepted. Hence, the fact that ROI had been used as a decision-making tool has led to a lack of goal congruence between Division A and the company as whole. This backs up what the new manager of Division A is saying. If they used residual income in order to aid the decision-making process, both proposals would be accepted by the divisions since both have a healthy RI. In this case, RI helps the divisions to make decisions which are in line with the best interests of the company. Once again, this backs up the new manager's viewpoint.

It is important to note, however, that each of the methods has numerous advantages and disadvantages which have not been considered here.

2 Cement Co

(a) Pay off table

		Weather	SUPPLY (no. of bags)		
			350,000	280,000	200,000
DEMAND			\$'000	\$'000	\$'000
		Good	\$'000	1,750 (1)	1,400
Average	\$'000	1,085 (2)	1,400	1,000	
Poor	\$'000	325	640	1,000	

Profit per bag sold in coming year = \$9 – \$4 = \$5

Loss per bag disposed of = \$4 + \$0.50 = \$4.50

(1) 350,000 x \$5 = \$1,750,000

(2) [280,000 x \$5] – [70,000 x \$(4.50)] = \$1,085,000 etc

(b) Maximin – identify the worst outcome for each level of supply and choose the highest of these worst outcomes.

	SUPPLY (no. of bags)		
	350,000	280,000	200,000
	\$'000	\$'000	\$'000
Worst	325	640	1,000

The highest of these is \$1,000,000 therefore choose to supply only 200,000 bags to meet poor conditions.

3 Brick by Brick

(a) Costs and quoted prices for the GC and the EX using ABC to absorb overheads

	GC	EX
	\$	\$
Materials	3,500	8,000
Labour 300 hrs x \$15/hr	4,500	
500 hrs x \$15/hr		7,500
Overheads		
– Supervisor (W2)/(W3)	180	1,080
– Planners (W2)/(W3)	280	1,400
– Property (W2)/(W3)	1,800	3,000
Total cost	<u>10,260</u>	<u>20,980</u>
Quoted price	<u>15,390</u>	<u>31,470</u>

(W2)	Costs	Number of drivers	Cost per driver
Supervisor	90,000	500	180
Planners	70,000	250	280
Property	240,000	40,000	6

(W3)	Supervisor	Planner	Property
Cost per driver (W2)	\$180	\$280	\$6
GC	80 x 1 = 180	280 x 1 = 280	6 x 300 = 1,800
EX	180 x 6 = 1,080	280 x 5 = 1,400	6 x 500 = 3,000

- (b) The pricing policy is a matter for BBB to decide. They could elect to maintain the current 50% mark-up on cost and if they did, the price of the GC would fall by around 7% in line with the costs. This should make them more competitive in the market. They could also reduce the prices by a little less than 7% (say 5%) in order to increase internal margins a little.

It is possible that the issue lies elsewhere. If the quality of the work or the reputation and reliability of the builder is questionable, then reducing prices is unlikely to improve sales. It is conceivable that BBB has a good reputation for EX but not for GC, but more likely that a poor reputation would affect all products. Equally, poor service levels or lack of flexibility in meeting customer needs may be causing the poor sales performance. These too will not be 'corrected' by merely reducing prices.

It is also possible that the way salesmen discuss or sell their products for the GC is not adequate, so that in some way customers are being put off placing the work with BBB. BBB is in competition and it perhaps needs to reflect this in its pricing more (by 'going rate pricing') and not seek to merely add a mark-up to its costs. BBB could try to penetrate the market by pricing some jobs cheaply to gain a foothold. Once this has been done, the completed EX or GC could be used to market the business to new customers.

The price of the EX would also need consideration. There is no indication of problems in the selling of the EX and so BBB could consider pushing up their prices by around 2% in line with the cost increase. The answer in part (a) above shows that the price goes up for a typical extension to \$31,470 from \$30,750 a rise of \$720. This does not seem that significant and so might not lose a significant number of sales.

The reliability and reputation of a builder is probably more important than the price which they charge for a job and so it is possible that the success rate on job quotes may not be that price sensitive.

4 Thatcher International Park

TIP's financial performance can be assessed in a number of ways:

Sales growth

Sales are up about 1.3% (W1) which is a little above the rate of inflation and therefore a move in the right direction. However, with average admission prices jumping about 8.6% (W2) and numbers of visitors falling, there are clearly problems. Large increases in admission prices reduce the value proposition for the customer; it is unlikely that the rate of increase is sustainable or even justifiable. Indeed with volumes falling (down by 6.7% (W6)), it appears that some customers are being put off and price could be one of the reasons.

Maintenance and repairs

There appears to be a continuing drift away from routine maintenance with management preferring to repair equipment as required. This does not appear to be saving any money as the combined cost of maintenance and repair is higher in 2012 than in 2011. It also gives rise to health and safety risks which could result in injury or even death to the customer. This could lead to claims against the company, seriously damaging the park's reputation and, ultimately, the park being closed down.

Directors' pay

Absolute salary levels are up 6.7% (W3), well above the modest inflation rate. It appears that the shareholders are happy with the financial performance of the business and are prepared to reward the directors accordingly. Bonus levels are also well up. It may be that the directors have some form of profit related pay scheme and are being rewarded for the improved profit performance. The directors are likely to be very pleased with the increases to pay.

Wages

Wages are down by 12% (W5). This may partly reflect the loss of customers (down by 6.7% (W6)) if we assume that at least part of the wages cost is variable. It could also be that the directors are reducing staff levels beyond the fall in the level of customers to enhance short-term profit and personal bonus. Customer service and indeed safety could be compromised here.

Net profit

Net profit is up a huge 31.3% (W7) and most shareholders would be pleased with that. Net profit is a very traditional measure of performance and most would say this was a sign of good performance.

Return on assets

The profitability can be measured relative to the asset base which is being used to generate it. This is sometimes referred to as ROI or return on investment. The return on assets is up considerably to 11.4% from 8% (W8). This is partly due to the significant rise in profit and partly due to the fall in asset value. We are told that TIP has cut back on new development so the fall in asset value is probably due to depreciation being charged with little being spent during the year on assets. In this regard, it is inevitable

that return on assets is up but it is more questionable whether this is a good performance. A theme park (and thrill rides in particular) must be updated to keep customers coming back. The directors of TIP are risking the future of the park.

Workings:

(W1) Sales growth is $\$5,320,000/\$5,250,000 = 1.01333$ or 1.3%

(W2) Average admission prices were:

2011: $\$5,250,000/150,000 = \35 per person

2012: $\$5,320,000/140,000 = \38 per person

An increase of $\$38/\$35 = 1.0857$ or 8.57%

(W3) Directors' pay up by $\$160,000/\$150,000 = 1.0667$ or 6.7%

(W4) Directors' bonuses levels up from $\$15,000/\$150,000$ or 10% to $\$18,000/\$160,000$ or 12.5% of turnover. This is an increase of $3/15$ or 20%.

(W5) Wages are down by $(1 - \$2,200,000/\$2,500,000)$ or 12%

(W6) Loss of customers is $(1 - 140,000/150,000)$ or 6.7%

(W7) Profits up by $\$1,372,000/\$1,045,000 = 1.3129$ or 31.3%

(W8) Return on assets:

2011: $\$1,045,000/\$13,000,000 = 1.0803$ or 8.03%

2012: $\$1,372,000/\$12,000,000 = 1.114$ or 11.4%

5 Truffle Co

(a) Planning and operational variances

Labour rate planning variance

(Revised rate – standard rate) x actual hours paid = $[\$12 - (\$12 \times 0.95)] \times 12,000 = \$7,200$ F.

Labour rate operational variance

(Revised rate – actual rate) x actual hours paid = $\$11.40 - \$11.40 \times 12,000 = 0$

Labour efficiency planning variance

(Standard hours for actual production – revised hours for actual production) x standard rate
 $[10,250 - (20,500 \times 0.5 \times 1.2)] \times \$12 = \$24,600$ A.

Labour efficiency operational variance

(Revised hours for actual production – actual hours for actual production) x standard rate
 $(12,300 - 12,000) \times \$12 = \$3,600$ F.

(b) Performance of production manager

In order to assess the production manager's performance fairly, only the operational variances should be taken into account. This is because planning variances reflect differences which arise because of factors which are outside the control of the production manager. The operational variance for the labour rate was \$0, which means that the labour force were paid exactly what was agreed at the end of October: their reduced rate of \$11.40 per hour. The manager clearly did not have to pay anyone for overtime, for example, which would have been expected to push this rate up. The rate reduction was secured by the company and was not within the control of the production manager, so he cannot take credit for the favourable rate planning variance of \$7,200. The company is the source of this improvement.

As regards labour efficiency, the planning variance is \$24,600 adverse. This is because the standard labour time per batch was not updated in November to reflect the fact that it would take longer to produce the truffles. The manager cannot be held responsible for this.

The operational variance, on the other hand, is once again something which the manager does have control of and should be held accountable for. In November, it is \$3,600 favourable, which reflects positively on him. When the recipe is changed, as it has been in November, the chocolates usually take 20% longer to make in the first month whilst the workers are getting used to handling the new ingredient mix. Actual results show that the workers took less than the 20% extra time which they were expected to take, hence the positive operational variance.

Overall, then, the manager has performed well, given the change in the recipe.

	<i>Marks</i>
Section A	
Each question	2
Total marks	<u><u>40</u></u>
Section B	
1 (a) Return on investment	
ROI of A	1
ROI of B	1
	<u>2</u>
(b) Residual income	
RI of A	2
RI of B	2
	<u>4</u>
(c) Comments	
A rejects, B accepts under ROI	1
Both accept under RI	1
ROI produces wrong decision for company and RI produces right decision	1
Manager right	1
	<u>4</u>
Total marks	<u><u>10</u></u>
2 (a) Pay off table	
Calculation of profit	1
Calculation of loss	1
'Demand' label	0.5
'Supply' label	0.5
Weather column	0.5
Supply column – 350,000	1.5
Supply column – 280,000	1.5
Supply column – 200,000	1.5
	<u>8</u>
(b) Decision criterion	
Maximin	
Calculation	1
Justification	1
	<u>2</u>
Total marks	<u><u>10</u></u>

		<i>Marks</i>
3	(a) Price under ABC	
	Materials	0.5
	Labour	0.5
	Supervisor overheads	1
	Planner overheads	1
	Property overheads	1
	Price	1
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		5
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	(b) Pricing discussion	
	GC – Reduce price by 7%	1
	GC – Reduce price by <7%	1
	Quality, reputation, reliability, sales documentation	2
	EX increases price by 2%	1
	EX hold price	1
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	Maximum	5
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	Total marks	10
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4	Sales growth	3
	Maintenance	3
	Directors pay	2
	Wages	2
	Net profit	2
	Return on assets	3
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	Total marks	15
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5	(a) Calculations	
	Labour rate planning variance	2
	Labour rate operational variance	2
	Labour rate planning variance	2
	Labour rate operational variance	2
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		8
		<hr style="width: 100%; border: 0.5px solid black;"/>
	(b) Discussion	
	Only operational variances controllable	1
	No labour rate operating variance	1
	Planning variance down to company, not manager	2
	Labour efficiency total variance looks bad	2
	Manager has performed well as regards efficiency	2
	Standard for labour time was to blame	2
	Conclusion	2
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	Maximum	7
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	Total marks	15
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