

Fundamentals Level – Skills Module

Performance Management

Monday 1 December 2014



Time allowed

Reading and planning: 15 minutes

Writing: 3 hours

This paper is divided into two sections:

Section A – ALL 20 questions are compulsory and MUST be attempted

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

Formulae Sheet is on page 14.

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 20 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 Dust Co has two divisions, A and B. Each division is currently considering the following separate projects:

	Division A	Division B
Capital required for the project	\$32.6 million	\$22.2 million
Sales generated by project	\$14.4 million	\$8.8 million
Operating profit margin	30%	24%
Cost of capital	10%	10%
Current return on investment of division	15%	9%

If residual income is used as the basis for the investment decision, which Division(s) would choose to invest in the project?

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

- 2 The following costs have arisen in relation to the production of a product:

- (i) Planning and concept design costs
- (ii) Testing costs
- (iii) Production costs
- (iv) Distribution and customer service costs

In calculating the life cycle costs of a product, which of the above items would be included?

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

- 3 **Which of the following describes a 'basic standard' within the context of budgeting?**

- A A standard which is kept unchanged over a period of time
- B A standard which is based on current price levels
- C A standard set at an ideal level, which makes no allowance for normal losses, waste and machine downtime
- D A standard which assumes an efficient level of operation, but which includes allowances for factors such as normal loss, waste and machine downtime

- 4 The following statements have been made about planning and control as described in the three tiers of Robert Anthony's decision-making hierarchy:

- (1) Strategic planning is concerned with making decisions about the efficient and effective use of existing resources
- (2) Operational control is about ensuring that specific tasks are carried out efficiently and effectively

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 P Co makes two products – P1 and P2 – budgeted details of which are as follows:

	P1	P2
	\$	\$
Selling price	10.00	8.00
Cost per unit:		
Direct materials	3.50	4.00
Direct labour	1.50	1.00
Variable overhead	0.60	0.40
Fixed overhead	1.20	1.00
Profit per unit	3.20	1.60

Budgeted production and sales for the year ended 30 November 2015 are:

Product P1	10,000 units
Product P2	12,500 units

The fixed overhead costs included in P1 relate to apportionment of general overhead costs only. However, P2 also includes specific fixed overheads totalling \$2,500.

If only product P1 were to be made, how many units (to the nearest unit) would need to be sold in order to achieve a profit of \$60,000 each year?

- A 25,625 units
- B 19,205 units
- C 18,636 units
- D 26,406 units

- 6 A company has the following production planned for the next four weeks. The figures reflect the full capacity level of operations. Planned output is equal to the maximum demand per product.

Product	A	B	C	D
	\$ per unit	\$ per unit	\$ per unit	\$ per unit
Selling price	160	214	100	140
Raw material cost	24	56	22	40
Direct labour cost	66	88	33	22
Variable overhead cost	24	18	24	18
Fixed overhead cost	16	10	8	12
Profit	30	42	13	48
Planned output	300	125	240	400
Direct labour hours per unit	6	8	3	2

The direct labour force is threatening to go on strike for two weeks out of the coming four. This means that only 2,160 hours will be available for production rather than the usual 4,320 hours.

If the strike goes ahead, which product or products should be produced if profits are to be maximised?

- A D and A
- B B and D
- C D only
- D B and C

- 7 The following table shows the number of clients who attended a particular accountancy practice over the last four weeks and the total costs incurred during each of the weeks:

Week	Number of clients	Total cost \$
1	400	36,880
2	440	39,840
3	420	36,800
4	460	40,000

Applying the high low method to the above information, which of the following could be used to forecast total cost (\$) from the number of clients expected to attend (where x = the expected number of clients)?

- A $7,280 + 74x$
 B $16,080 + 52x$
 C $3,200 + 80x$
 D $40,000/x$
- 8 Oxco has two divisions, A and B. Division A makes a component for air conditioning units which it can only sell to Division B. It has no other outlet for sales.

Current information relating to Division A is as follows:

Marginal cost per unit	\$100
Transfer price of the component	\$165
Total production and sales of the component each year	2,200 units
Specific fixed costs of Division A per year	\$10,000

Cold Co has offered to sell the component to Division B for \$140 per unit. If Division B accepts this offer, Division A will be shut.

If Division B accepts Cold Co's offer, what will be the impact on profits per year for the group as a whole?

- A Increase of \$65,000
 B Decrease of \$78,000
 C Decrease of \$88,000
 D Increase of \$55,000
- 9 The following statements have been made in relation to activity-based costing:

- (1) A cost driver is a factor which causes a change in the cost of an activity
 (2) Traditional absorption costing tends to under-estimate overhead costs for high volume products

Which of the above statements is/are true?

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

- 10** A linear programming model has been formulated for two products, X and Y. The objective function is depicted by the formula $C = 5X + 6Y$, where C = contribution, X = the number of product X to be produced and Y = the number of product Y to be produced.

Each unit of X uses 2 kg of material Z and each unit of Y uses 3 kg of material Z. The standard cost of material Z is \$2 per kg.

The shadow price for material Z has been worked out and found to be \$2.80 per kg.

If an extra 20 kg of material Z becomes available at \$2 per kg, what will the maximum increase in contribution be?

- A** Increase of \$96
- B** Increase of \$56
- C** Increase of \$16
- D** No change

- 11** The following statements have been made about both standard costing and total quality management (TQM):

- (1) They focus on assigning responsibility solely to senior managers
- (2) They work well in rapidly changing environments

Which of the above statements is/are true?

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

- 12** The following statements have been made about environmental cost accounting:

- (1) The majority of environmental costs are already captured within a typical organisation's accounting system. The difficulty lies in identifying them
- (2) Input/output analysis divides material flows within an organisation into three categories: material flows; system flows; and delivery and disposal flows

Which of the above statements is/are true?

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

13 Def Co provides accounting services to government departments. On average, each staff member works six chargeable hours per day, with the rest of their working day being spent on non-chargeable administrative work. One of the company's main objectives is to produce a high level of quality and customer satisfaction.

Def Co has set its targets for the next year as follows:

- (1) Cutting departmental expenditure by 5%
- (2) Increasing the number of chargeable hours handled by advisers to 6.2 per day
- (3) Obtaining a score of 4.7 or above on customer satisfaction surveys

Which of the above targets assesses economy, efficiency and effectiveness at Def Co?

	Economy	Efficiency	Effectiveness
A	1	3	2
B	2	1	3
C	3	2	1
D	1	2	3

14 Which of the following is an advantage of non-participative budgeting as compared to participative budgeting?

- A** It increases motivation
- B** It is less time consuming
- C** It increases acceptance
- D** The budgets produced are more attainable

15 The following are all steps in the implementation of the target costing process for a product:

- (1) Calculate the target cost
- (2) Calculate the estimated current cost based on the existing product specification
- (3) Set the required profit
- (4) Set the selling price
- (5) Calculate the target cost gap

Which of the following represents the correct sequence if target costing were to be used?

- A** (1), (2), (3), (4), (5)
- B** (2), (3), (4), (1), (5)
- C** (4), (3), (1), (2), (5)
- D** (4), (5), (3), (1), (2)

16 What is the name given to a budget which has been prepared by building on a previous period's budgeted or actual figures?

- A** Incremental budget
- B** Flexible budget
- C** Zero based budget
- D** Functional budget

- 17 Tree Co is considering employing a sales manager. Market research has shown that a good sales manager can increase profit by 30%, an average one by 20% and a poor one by 10%. Experience has shown that the company has attracted a good sales manager 35% of the time, an average one 45% of the time and a poor one 20% of the time. The company's normal profits are \$180,000 per annum and the sales manager's salary would be \$40,000 per annum.

Based on the expected value criterion, which of the following represents the correct advice which Tree Co should be given?

- A Do not employ a sales manager as profits would be expected to fall by \$1,300
- B Employ a sales manager as profits will increase by \$38,700
- C Employ a sales manager as profits are expected to increase by \$100
- D Do not employ a sales manager as profits are expected to fall by \$39,900

- 18 A company manufactures two products, C and D, for which the following information is available:

	Product C	Product D	Total
Budgeted production (units)	1,000	4,000	5,000
Labour hours per unit/in total	8	10	48,000
Number of production runs required	13	15	28
Number of inspections during production	5	3	8
Total production set up costs	\$140,000		
Total inspection costs	\$80,000		
Other overhead costs	\$96,000		

Other overhead costs are absorbed on the basis of labour hours per unit.

Using activity-based costing, what is the budgeted overhead cost per unit of product D?

- A \$43.84
- B \$46.25
- C \$131.00
- D \$140.64

- 19 X Co uses rolling budgeting, updating its budgets on a quarterly basis. After carrying out the last quarter's update to the cash budget, it projected a forecast cash deficit of \$400,000 at the end of the year. Consequently, the planned purchase of new capital equipment has been postponed.

Which of the following types of control is the sales manager's actions an example of?

- A Feedforward control
- B Negative feedback control
- C Positive feedback control
- D Double loop feedback control

20 The following circumstances may arise in relation to the launch of a new product:

- (i) Demand is relatively inelastic
- (ii) There are significant economies of scale
- (iii) The firm wishes to discourage new entrants to the market
- (iv) The product life cycle is particularly short

Which of the above circumstances favour a penetration pricing policy?

- A** (ii) and (iii) only
- B** (ii) and (iv)
- C** (i), (ii) and (iii)
- D** (ii), (iii) and (iv) only

(40 marks)

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

- 1** Chair Co has developed a new type of luxury car seat. The estimated labour time for the first unit is 12 hours but a learning curve of 75% is expected to apply for the first eight units produced. The cost of labour is \$15 per hour. The cost of materials and other variable overheads is expected to total \$230 per unit.

Chair Co plans on pricing the seat by adding a 50% mark-up to the total variable cost per seat, with the labour cost being based on the incremental time taken to produce the 8th unit.

Required:

- (a) Calculate the price which Chair Co expects to charge for the new seat.**

Note: The learning index for a 75% learning curve is -0.415 . (5 marks)

- (b)** The first phase of production has now been completed for the new car seat. The first unit actually took 12.5 hours to make and the total time for the first eight units was 34.3 hours, at which point the learning effect came to an end. Chair Co are planning on adjusting the price to reflect the actual time it took to complete the 8th unit.

Required:

- (i) Calculate the actual rate of learning and state whether this means that the labour force actually learnt more quickly or less quickly than expected.** (3 marks)
- (ii) Briefly explain whether the adjusted price charged by Chair Co will be higher or lower than the price you calculated in part (a) above. You are NOT required to calculate the adjusted price.** (2 marks)

(10 marks)

- 2 Glam Co is a hairdressing salon which provides both 'cuts' and 'treatments' to clients. All cuts and treatments at the salon are carried out by one of the salon's three senior stylists. The salon also has two salon assistants and two junior stylists.

Every customer attending the salon is first seen by a salon assistant, who washes their hair; next, by a senior stylist, who cuts or treats the hair depending on which service the customer wants; then finally, a junior stylist who dries their hair. The average length of time spent with each member of staff is as follows:

	Cut Hours	Treatment Hours
Assistant	0·1	0·3
Senior stylist	1	1·5
Junior stylist	0·5	0·5

The salon is open for eight hours each day for six days per week. It is only closed for two weeks each year. Staff salaries are \$40,000 each year for senior stylists, \$28,000 each year for junior stylists and \$12,000 each year for the assistants. The cost of cleaning products applied when washing the hair is \$0·60 per client. The cost of all additional products applied during a 'treatment' is \$7·40 per client. Other salon costs (excluding labour and raw materials) amount to \$106,400 each year.

Glam Co charges \$60 for each cut and \$110 for each treatment.

The senior stylists' time has been correctly identified as the bottleneck activity.

Required:

- (a) Briefly explain why the senior stylists' time has been described as the 'bottleneck activity', supporting your answer with calculations. (4 marks)
- (b) Calculate the throughput accounting ratio (TPAR) for 'cuts' and the TPAR for 'treatments' assuming the bottleneck activity is fully utilised. (6 marks)

(10 marks)

- 3 The Hi Life Co (HL Co) makes sofas. It has recently received a request from a customer to provide a one-off order of sofas, in excess of normal budgeted production. The order would need to be completed within two weeks. The following cost estimate has already been prepared:

Direct materials:		Note	\$
Fabric	200 m ² at \$17 per m ²	1	3,400
Wood	50 m at \$8·20 per m ²	2	410
Direct labour:			
Skilled	200 hours at \$16 per hour	3	3,200
Semi-skilled	300 hours at \$12 per hour	4	3,600
Factory overheads	500 hours at \$3 per hour	5	1,500
Total production cost			12,110
Administration overheads at 10% of total production cost		6	1,211
Total cost			<u>13,321</u>

Notes

- The fabric is regularly used by HL Co. There are currently 300 m² in inventory, which cost \$17 per m². The current purchase price of the fabric is \$17·50 per m².
- This type of wood is regularly used by HL Co and usually costs \$8·20 per m². However, the company's current supplier's earliest delivery time for the wood is in three weeks' time. An alternative supplier could deliver immediately but they would charge \$8·50 per m². HL Co already has 500 m² in inventory but 480 m² of this is needed to complete other existing orders in the next two weeks. The remaining 20 m² is not going to be needed until four weeks' time.
- The skilled labour force is employed under permanent contracts of employment under which they must be paid for 40 hours' per week's labour, even if their time is idle due to absence of orders. Their rate of pay is \$16 per hour, although any overtime is paid at time and a half. In the next two weeks, there is spare capacity of 150 labour hours.
- There is no spare capacity for semi-skilled workers. They are currently paid \$12 per hour or time and a half for overtime. However, a local agency can provide additional semi-skilled workers for \$14 per hour.
- The \$3 absorption rate is HL Co's standard factory overhead absorption rate; \$1·50 per hour reflects the cost of the factory supervisor's salary and the other \$1·50 per hour reflects general factory costs. The supervisor is paid an annual salary and is also paid \$15 per hour for any overtime he works. He will need to work 20 hours' overtime if this order is accepted.
- This is an apportionment of the general administration overheads incurred by HL Co.

Required:

Prepare, on a relevant cost basis, the lowest cost estimate which could be used as the basis for the quotation. Explain briefly your reasons for including or excluding each of the costs in your estimate.

(10 marks)

- 4 Jamair was founded in September 2007 and is one of a growing number of low-cost airlines in the country of Shania. Jamair's strategy is to operate as a low-cost, high efficiency airline, and it does this by:
- Operating mostly in secondary cities to reduce landing costs.
 - Using only one type of aircraft in order to reduce maintenance and operational costs. These planes are leased rather than bought outright.
 - Having only one category of seat class.
 - Having no pre-allocated seats or in-flight entertainment.
 - Focusing on e-commerce with customers both booking tickets and checking in for flights online.

The airline was given an 'on time arrival' ranking of seventh best by the country's aviation authority, who rank all 50 of the country's airlines based on the number of flights which arrive on time at their destinations. 48 Jamair flights were cancelled in 2013 compared to 35 in 2012. This increase was due to an increase in the staff absentee rate at Jamair from 3 days per staff member per year to 4.5 days.

The average 'ground turnaround time' for airlines in Shania is 50 minutes, meaning that, on average, planes are on the ground for cleaning, refuelling, etc for 50 minutes before departing again. Customer satisfaction surveys have shown that 85% of customers are happy with the standard of cleanliness on Jamair's planes.

The number of passengers carried by the airline has grown from 300,000 passengers on a total of 3,428 flights in 2007 to 920,000 passengers on 7,650 flights in 2013. The overall growth of the airline has been helped by the limited route licensing policy of the Shanian government, which has given Jamair almost monopoly status on some of its routes. However, the government is now set to change this policy with almost immediate effect, and it has become more important than ever to monitor performance effectively.

Required:

- (a) Describe each of the four perspectives of the balanced scorecard. (6 marks)
- (b) For each perspective of the balanced scorecard, identify one goal together with a corresponding performance measure which could be used by Jamair to measure the company's performance. The goals and measures should be specifically relevant to Jamair. For each pair of goals and measures, explain why you have chosen them. (9 marks)

(15 marks)

- 5 The Safe Soap Co makes environmentally-friendly soap using three basic ingredients. The standard cost card for one batch of soap for the month of September was as follows:

Material	Kilograms	Price per kilogram (\$)
Lye	0.25	10
Coconut oil	0.6	4
Shea butter	0.5	3

The budget for production and sales in September was 120,000 batches. Actual production and sales were 136,000 batches. The actual ingredients used were as follows:

Material	Kilograms
Lye	34,080
Coconut oil	83,232
Shea butter	64,200

Required:

- (a) Calculate the total material mix variance and the total material yield variance for September. (8 marks)

- (b) In October the materials mix and yield variances were as follows:

Mix: \$6,000 adverse
Yield: \$10,000 favourable

The production manager is pleased with the results overall, stating:

'At the beginning of September I made some changes to the mix of ingredients used for the soaps. As I expected, the mix variance is adverse in both months because we haven't yet updated our standard cost card but, in both months, the favourable yield variance more than makes up for this. Overall, I think we can be satisfied that the changes made to the product mix are producing good results and now we are able to produce more batches and meet the growing demand for our product.'

The sales manager, however, holds a different view and says:

'I'm not happy with this change in the ingredients mix. I've had to explain to the board why the sales volume variance for October was \$22,000 adverse. I've tried to explain that the quality of the soap has declined slightly and some of my customers have realised this and simply aren't happy but no-one seems to be listening. Some customers are even demanding that the price of the soap be reduced and threatening to go elsewhere if the problem isn't sorted out.'

Required:

- (i) Briefly explain what the adverse materials mix and favourable materials yield variances indicate about production at Safe Soap Co in October.

Note: You are NOT required to discuss revision of standards or operational and planning variances.

(4 marks)

- (ii) Discuss whether the sales manager could be justified in claiming that the change in the materials mix has caused an adverse sales volume variance in October. (3 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