

Fundamentals Level – Skills Module

# Performance Management

March/June 2016 – Sample Questions



**Time allowed**

Reading and planning: 15 minutes

Writing: 3 hours

This question 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 7.**

**Do NOT open this question 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.**

**Do NOT record any of your answers on the question paper.**

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

# 5 F Paper

Think Ahead



The Association of  
Chartered Certified  
Accountants

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

Please write your answers to all parts of these questions on the lined pages within the Candidate Answer Booklet.

- 1** Jewel Co is setting up an online business importing and selling jewellery headphones. The cost of each set of headphones varies depending on the number purchased, although they can only be purchased in batches of 1,000 units. It also has to pay import taxes which vary according to the quantity purchased.

Jewel Co has already carried out some market research and identified that sales quantities are expected to vary depending on the price charged. Consequently, the following data has been established for the first month:

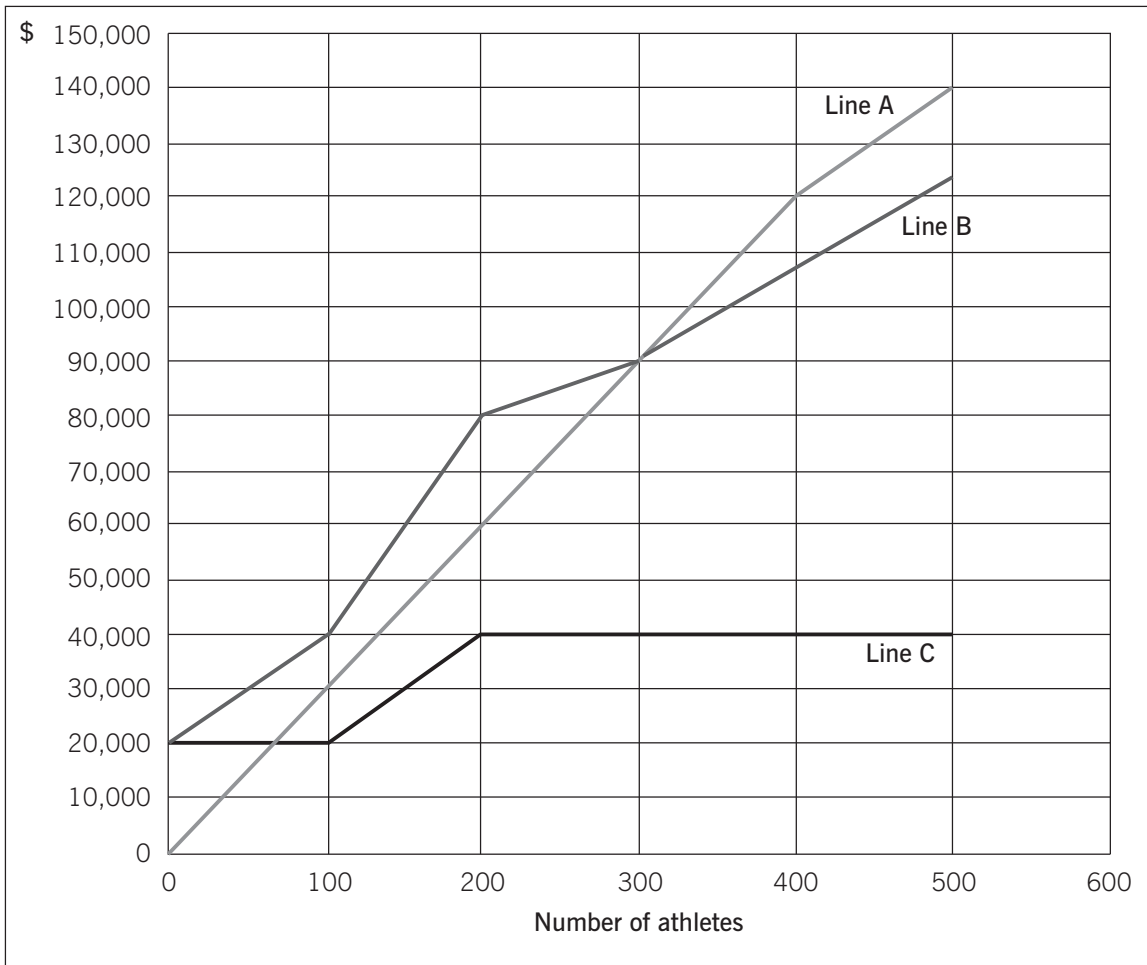
| Number of batches imported and sold | Average cost per unit including import taxes<br>\$ | Total fixed costs per month<br>\$ | Expected selling price per unit<br>\$ |
|-------------------------------------|--|-----------------------------------|---------------------------------------|
| 1                                   | 10.00  | 10,000                            | 20                                    |
| 2                                   | 8.80   | 10,000                            | 18                                    |
| 3                                   | 7.80   | 12,000                            | 16                                    |
| 4                                   | 6.40   | 12,000                            | 13                                    |
| 5                                   | 6.40   | 14,000                            | 12                                    |

**Required:**

- (a) Calculate how many batches Jewel Co should import and sell. (6 marks)
- (b) Explain why Jewel Co could not use the algebraic method to establish the optimum price for its product. (4 marks)

**(10 marks)**

2 Swim Co offers training courses to athletes and has prepared the following breakeven chart:



Required:

- (a) State the breakeven sales revenue for Swim Co and estimate, to the nearest \$10,000, the company's profit if 500 athletes attend a training course. (2 marks)
- (b) Using the chart above, explain the cost and revenue structure of the company. (8 marks)
- (10 marks)**

- 3 Shoe Co, a shoe manufacturer, has developed a new product called the 'Smart Shoe' for children, which has a built-in tracking device. The shoes are expected to have a life cycle of two years, at which point Shoe Co hopes to introduce a new type of Smart Shoe with even more advanced technology. Shoe Co plans to use life cycle costing to work out the total production cost of the Smart Shoe and the total estimated profit for the two-year period.

Shoe Co has spent \$5.6m developing the Smart Shoe. The time spent on this development meant that the company missed out on the opportunity of earning an estimated \$800,000 contribution from the sale of another product.

The company has applied for and been granted a ten-year patent for the technology, although it must be renewed each year at a cost of \$200,000. The costs of the patent application were \$500,000, which included \$20,000 for the salary costs of Shoe Co's lawyer, who is a permanent employee of the company and was responsible for preparing the application.

The following information is also available for the next two years:

|                        | Year 1  | Year 2  |
|------------------------|---------|---------|
| Sales volumes (units)  | 280,000 | 420,000 |
|                        | \$      | \$      |
| Selling price per unit | 55      | 45      |
| Material cost per unit | 16      | 14      |
| Labour cost per unit   | 8       | 7       |

**Note:** A unit is a pair of shoes

Other costs are expected to be as follows:

|                                | Year 1 | Year 2 |
|--------------------------------|--------|--------|
|                                | \$m    | \$m    |
| Fixed production overheads     | 1.6    | 2.2    |
| Selling and distribution costs | 0.6    | 0.9    |
| Environmental costs            | 0.1    | 0.15   |

Shoe Co is still negotiating with marketing companies with regard to its advertising campaign, so is uncertain as to what the total marketing costs will be each year. However, the following information is available as regards the probabilities of the range of costs which are likely to be incurred:

| Year 1              |             | Year 2              |             |
|---------------------|-------------|---------------------|-------------|
| Expected cost (\$m) | Probability | Expected cost (\$m) | Probability |
| 2.2                 | 0.2         | 1.8                 | 0.3         |
| 2.6                 | 0.5         | 2.1                 | 0.4         |
| 2.9                 | 0.3         | 2.3                 | 0.3         |

**Required:**

**Applying the principles of life cycle costing, calculate the total expected profit for Shoe Co for the two-year period.**

**(10 marks)**

- 4 A manufacturing company, Man Co, has two divisions: Division L and Division M. Both divisions make a single standardised product. Division L makes component L, which is supplied to both Division M and external customers. Division M makes product M using one unit of component L and other materials. It then sells the completed product M to external customers. To date, Division M has always bought component L from Division L.

The following information is available:

|  | Component L<br>\$ | Product M<br>\$ |
|--|-------------------|-----------------|
| Selling price                            | 40                | 96              |
| Direct materials:                        |                   |                 |
| Component L                              |                   | (40)            |
| Other                                    | (12)              | (17)            |
| Direct labour                            | (6)               | (9)             |
| Variable overheads                       | (2)               | (3)             |
| Selling and distribution costs           | (4)               | (1)             |
| Contribution per unit before fixed costs | <u>16</u>         | <u>26</u>       |
| Annual fixed costs                       | \$500,000         | \$200,000       |
| Annual external demand (units)           | 160,000           | 120,000         |
| Capacity of plant                        | 300,000           | 130,000         |

Division L charges the same price for component L to both Division M and external customers. However, it does not incur the selling and distribution costs when transferring internally.

Division M has just been approached by a new supplier who has offered to supply it with component L for \$37 per unit. Prior to this offer, the cheapest price which Division M could have bought component L for from outside the group was \$42 per unit.

It is head office policy to let the divisions operate autonomously without interference at all.

**Required:**

- (a) Calculate the incremental profit/(loss) per component for the group if Division M accepts the new supplier's offer and recommend how many components Division L should sell to Division M if group profits are to be maximised. (3 marks)
- (b) Using the quantities calculated in (a) and the current transfer price, calculate the total annual profits of each division and the group as a whole. (6 marks)
- (c) Discuss the problems which will arise if the transfer price remains unchanged and advise the divisions on a suitable alternative transfer price for component L. (6 marks)

**(15 marks)**

- 5 Glove Co makes high quality, hand-made gloves which it sells for an average of \$180 per pair. The standard cost of labour for each pair is \$42 and the standard labour time for each pair is three hours. In the last quarter, Glove Co had budgeted production of 12,000 pairs, although actual production was 12,600 pairs in order to meet demand. 37,000 hours were used to complete the work and there was no idle time. The total labour cost for the quarter was \$531,930.

At the beginning of the last quarter, the design of the gloves was changed slightly. The new design required workers to sew the company's logo on to the back of every glove made and the estimated time to do this was 15 minutes for each pair. However, no-one told the accountant responsible for updating standard costs that the standard time per pair of gloves needed to be changed. Similarly, although all workers were given a 2% pay rise at the beginning of the last quarter, the accountant was not told about this either. Consequently, the standard was not updated to reflect these changes.

When overtime is required, workers are paid 25% more than their usual hourly rate.

**Required:**

- (a) Calculate the total labour rate and total labour efficiency variances for the last quarter. (2 marks)
- (b) Analyse the above total variances into component parts for planning and operational variances in as much detail as the information allows. (6 marks)
- (c) Assess the performance of the production manager for the last quarter. (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**