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# Business management

## Higher level

### Paper 1

23 October 2023

Zone A afternoon | Zone B afternoon | Zone C afternoon

2 hours 15 minutes

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#### Instructions to candidates

- Do not open this examination paper until instructed to do so.
- A clean copy of the **business management case study** is required for this examination paper.
- Read the case study carefully.
- A clean copy of the **business management formulae sheet** is required for this examination paper.
- Section A: answer two questions.
- Section B: answer question 4.
- Section C: answer question 5.
- A calculator is required for this examination paper.
- The maximum mark for this examination paper is **[60 marks]**.

## Section A

Answer **two** questions from this section.

1. (a) Outline **two** reasons why *BRD* may have chosen external growth rather than internal growth for its expansion (lines 27–28). [4]
- (b) Explain how Arnold’s relationship with *BRD*’s employees may have affected productivity at *BRD* (lines 58–72). [6]
2. (a) Outline **two** ways in which *BRD* could change its marketing mix when it switches to making model trains with plastic rather than metal in 2024 (lines 108–110). [4]
- (b) Explain the likely impact on *BRD* of changing from batch production to cellular manufacturing (lines 41–56). [6]
3. (a) Outline **two** types of secondary market research that *BRD* could have used to identify the reasons for the decline in sales of model train sets and plastic model kits (lines 114–115). [4]
- (b) Explain the likely impact on *BRD* of selling additional share capital to solve its liquidity problem (lines 124–141). [6]

### Section B

Answer the following question.

4. *BRD* manufactures model train sets using just-in-case (JIC) stock control. Every December, sales of model train sets are usually equal to three months of production. *BRD* has 300 limited-edition train sets, made in 1999 to mark the turn of the millennium, in stock.

High-quality packaging is a feature of *BRD* train sets. *BRD* is considering buying packaging from *GXG* in Germany. In 2024, *BRD* plans to make 100 000 train sets. *BRD* will use the data in **Table 1** to make a decision about whether to continue to make its own packaging or buy packaging from *GXG*.

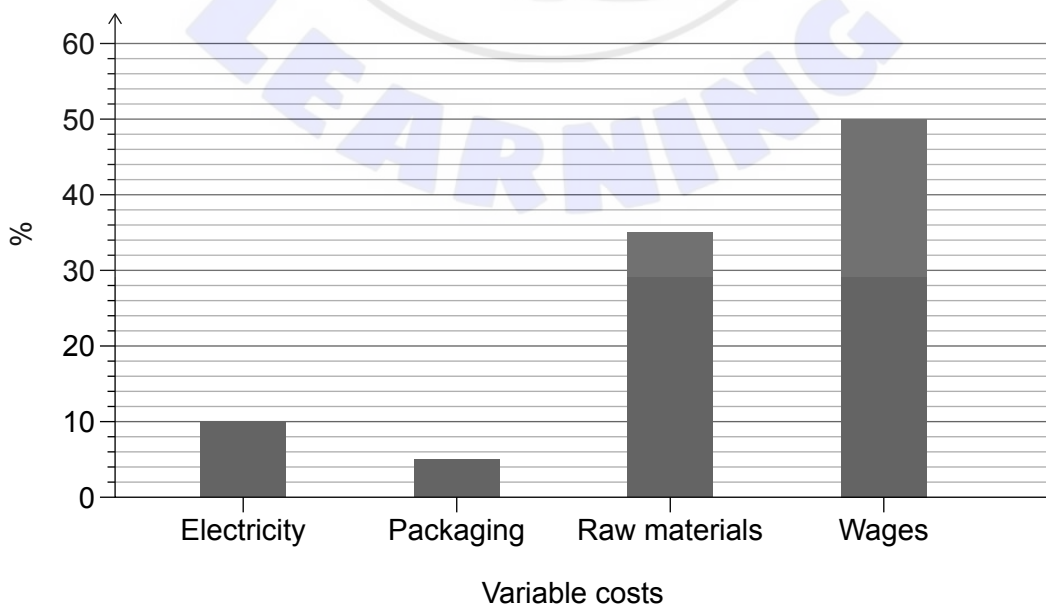
**Table 1: Forecasted costs for *BRD* to make its own packaging or buy packaging from *GXG***

| Make its own packaging       |       | Buy packaging from <i>GXG</i> |            |
|------------------------------|-------|-------------------------------|------------|
| Packaging unit variable cost | £0.55 | Order quantity                | Unit price |
| Packaging total fixed costs  | £5000 | 0–75 000                      | £0.70      |
|                              |       | 75 001–90 000                 | £0.66      |
|                              |       | 90 001–105 000                | £0.56      |
|                              |       | 105 001+                      | £0.50      |

*BRD* uses a cost-plus (mark-up) pricing strategy for its *Matchfix* plastic model kits. Price increases of plastics and electricity have reduced profit margins.

In 2022, 180 000 *Matchfix* plastic model kits were made and sold at £80 each. Unit variable costs were £75, and total fixed costs were £800 000. The percentage share of unit variable costs per *Matchfix* plastic model kit is shown in **Figure 1**.

**Figure 1: Percentage share of unit variable costs per *Matchfix* plastic model kit**



(This question continues on the following page)

Turn over

**(Question 4 continued)**

*BRD*'s board of directors are considering **two** options to improve the profit margins of its *Matchfix* plastic model kits: installing solar panels on its factory roof to generate electricity or outsourcing the production of the *Matchfix* plastic model kits.

**Option 1: Install solar panels on the factory roof to generate electricity**

Costing £2 572 763, the installation would reduce *BRD*'s annual *Matchfix* production line net electricity bill by 75%. Last year's bill was £1 350 000. *BRD* forecasts electricity prices to increase by 10% per year until 2034. The forecasted savings are shown in **Table 2**.

**Table 2: Forecasted net annual electricity savings from solar panel installation (all figures in £s)**

|        |           |
|--------|-----------|
| Year 1 | 1 113 750 |
| Year 2 | 1 225 125 |
| Year 3 | 1 347 638 |
| Year 4 | 1 482 401 |
| Year 5 | 1 630 641 |

**Option 2: Outsource the production of Matchfix plastic model kits**

*BRD* is negotiating with *VKI*, a manufacturer in China, to produce and supply the plastic model kits for five years. In the first year, *VKI*'s price would be 25% lower than *BRD*'s current production unit cost. Thereafter, the price would rise by 10% each year.

- (a) Define the term *cost-plus (mark-up) pricing*. [2]
- (b) Explain **one** advantage **and one** disadvantage for *BRD* of using just-in-case (JIC) stock control for the manufacture of its model train sets. [4]
- (c) (i) Calculate the difference between the cost for *BRD* to make its own packaging and the cost to buy the packaging from *GXG* (*show all your working*). [3]
- (ii) Suggest **one** factor, **other than** cost, that *BRD* should consider before deciding whether to make its own packaging or buy packaging from *GXG*. [1]
- (d) Using information from the case study and the additional information above, recommend whether *BRD* should choose **Option 1** (install solar panels) or **Option 2** (outsource production). [10]

### Section C

Answer the following question.

5. It is now November 2023, and *BRD*'s board of directors did not approve the installation of solar panels nor the outsourcing of the production of the *Matchfix* plastic model kits.

*4Change* now owns 45% of *BRD*'s shares and wants to make strategic changes.

*BRD*'s board of directors are considering two strategic options: a location and product change, suggested by the *4Change* board members, or the repurposing of unused factory space for a visitor centre, suggested by other board members.

**Option 1: A location and product change, suggested by the *4Change* board members**

- Sell *BRD*'s Liverpool factory, which is valued at £28 million. *BRD* is valued at £24 million.
- Relocate to a factory nearby at an annual rent of £2 million and setup costs of £1.5 million.
- End the production of *BRD*'s model train sets. A retailer in India has offered £3 million to purchase *BRD*'s stocks of model train sets, valued at £10 million, along with the brand name, *BRD* Three-Rail Model Railway.
- Launch a new two-rail model train set with a new brand name, *BRD* 21st-Century Trains.

**Option 2: Repurposing unused factory space for a visitor centre, suggested by other board members**

- Two possibilities have been proposed for the visitor centre:
  - A railway museum showcasing full-sized railway engines and rail cars from the 20th century.
  - A science and imagination centre with interactive exhibits, allowing families to experiment with wind, magnets, electricity, and light. Highly trained employees would be needed to assist with experiments.

**Table 3: Forecasted costs for the visitor centre**

|                             |          |
|-----------------------------|----------|
| Setup costs                 | £900 000 |
| Annual total variable costs | £100 000 |
| Annual total fixed costs    | £150 000 |

Total costs are forecasted to rise by 10% each year.

The entrance fee to the visitor centre would be £15 per adult, with accompanied children entering for free.

**Table 4: Forecasted numbers for paying visitor centre customers**

| Year | Paying visitor centre customers |
|------|---------------------------------|
| 1    | 40 000                          |
| 2    | 50 000                          |
| 3    | 55 000                          |
| 4    | 59 000                          |
| 5    | 63 000                          |

(This question continues on the following page)

Turn over

**(Question 5 continued)**

*BRD*'s board of directors are divided. Arnold, who is in his final year as chief executive officer (CEO), has drawn up a force field analysis of both proposed options, shown in **Table 5**.

**Table 5: Arnold's force field analysis**

| <b>Option 1: Location and product change</b> |              |   |              |
|--|--------------|---|--------------|
| <b>Driving forces</b>                        |              | <b>Restraining forces</b>               |              |
|  | <b>Value</b> |   | <b>Value</b> |
| Funds from sale of the factory               | 4            | Relocation and setup costs              | 1            |
| Relocation of offices and production         | 1            | Increased costs (rent and setup costs)  | 4            |
| Access to mass markets                       | 2            | Dilution of the <i>BRD</i> brand        | 2            |
| Release of funds tied up in stocks           | 2            | Stocks sold at below cost of production | 3            |
| <b>Total</b>                                 | <b>9</b>     | <b>Total</b>                            | <b>10</b>    |

| <b>Option 2: Repurposing unused factory space for a visitor centre</b> |              |                                     |              |
|--|--------------|-------------------------------------|--------------|
| <b>Driving forces</b>  |              | <b>Restraining forces</b>           |              |
|  | <b>Value</b> |                                     | <b>Value</b> |
| New revenue streams  | 3            | Lack of experience with new venture | 2            |
| Increased diversification  | 2            | Need to finance the development     | 3            |
| Slot circuit will provide a unique selling point/proposition (USP)     | 3            | Slot circuit growth potential       | 2            |
| Predicted visitor numbers  | 2            | Limited long-term growth            | 1            |
| <b>Total</b>   | <b>10</b>    | <b>Total</b>                        | <b>8</b>     |

All figures are based on Arnold's personal opinions.

Using the case study and the additional information on pages 5 and 6, recommend whether *BRD* should choose **Option 1** (location and product change) or **Option 2** (repurpose unused factory space).

[20]