



## Mock Exam 3

CANDIDATE  
NAME

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CENTRE  
NUMBER

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CANDIDATE  
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**BUSINESS**

**9609**

Paper 3 Case Study

**1 hour 45 minutes**

You must answer on the question paper.

You will need: Insert (enclosed)

### INSTRUCTIONS

- Section A: answer **all** questions.
- Section B: answer **one** question.
- Use a black or dark blue pen.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- You may use an HB pencil for any diagrams, graphs or rough working.

### INFORMATION

- The total mark for this paper is 60.
- The number of marks for each question or part question is shown in brackets [ ].
- The insert contains the case study.

## **P3 Mock 3**

### **Asian Electric Vehicles (AEV)**

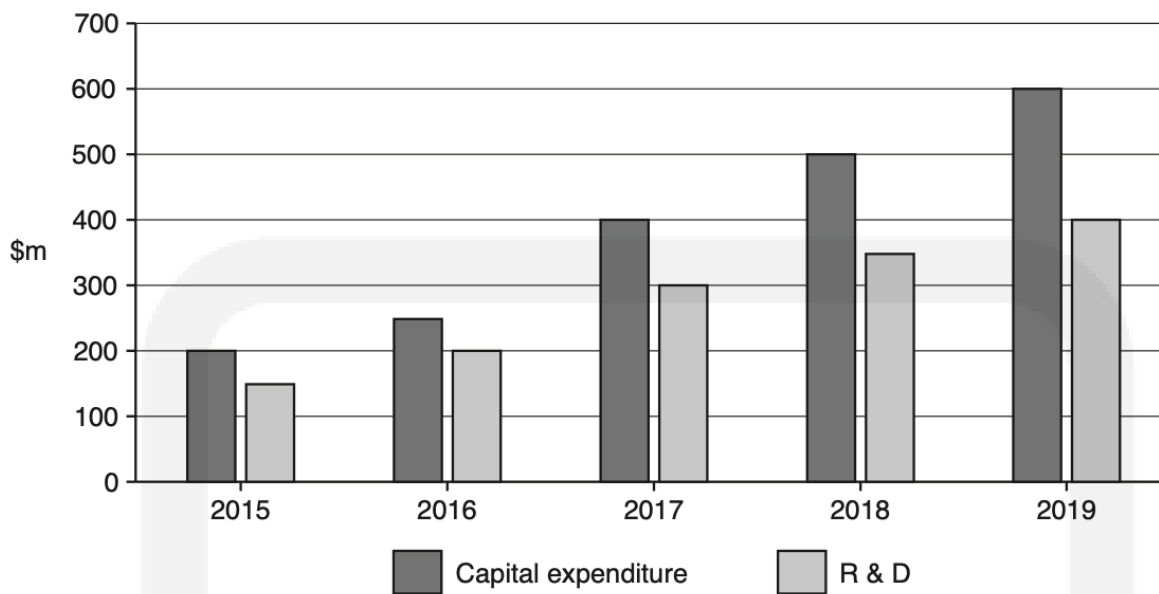
Akira Morrison graduated from university with a degree in electrical engineering. He made his fortune in technology start-ups in country K in Asia. Akira lived in the capital city and he became increasingly concerned about pollution from cars. He started to research the problem, and was soon convinced that electric vehicles were the solution. Akira planned to start a business called AEV that would produce electric cars. It was difficult to attract investors as it was generally accepted that competition from car manufacturers and problems with the existing battery technology made success unlikely. However, Akira approached venture capitalists for finance in return for equity and, along with his own substantial investment, AEV began operations as a private limited company in 2010. It converted to a public limited company in 2011, with Akira as Chief Executive Officer (CEO).

### **Product development – launching the AEV4**

AEV's first three products were luxury cars with prices ranging from \$70000 to \$100000. Demand for these cars has been high but customers have had to wait months for delivery. From the start, Akira recognised that there were two key problems faced by his business:

- the short distance that cars can travel on one battery charge
- limited facilities within some countries to allow charging of car batteries.

A high proportion of AEV's investment into research and development has been to improve battery performance. Working in partnership with the University of Technology, AEV has increased the distance the vehicles can travel with its advanced battery technology. Over 9 years, AEV has cut battery costs by 75% and achieved a 500% increase in the amount of energy stored in each battery. Fig. 1 shows AEV's capital expenditure and research and development expenditure.



**Fig. 1: AEV investment (\$m)**

At the launch party of AEV's new model, the AEV4, in September 2019, Akira told the media: 'Today is a historic moment for AEV. The AEV4 will transform the company from a niche producer of electric sports cars into the biggest mass producer of electric cars in the world.'

### **Production problems**

In 2012 AEV bought a car factory in country K that was about to be closed. Akira converted the outdated factory into an advanced manufacturing centre called CellX. This is AEV's only manufacturing base. Although it is capital intensive, AEV now employs 2000 workers on the CellX car production line and associated battery production. 80% of the workforce are trade union members.

Production delays and quality problems have affected the supply of AEV cars. To increase car production, employees are required to work long hours with compulsory overtime. They have complained about the difficulty of achieving the high production targets. In 2018, ambulances were called to the factory more than times for employees suffering from work-related health problems. These problems have been reported in the media. A company spokesperson has reassured the media that factory safety has improved in 2019 and that AEV cares about employee welfare.

Akira is worried about the impact of labour turnover at the CellX manufacturing centre. Further details are in Table 1.

**Table 1: Employee data for CellX**

| Year | Total employees | Employees leaving |
|------|-----------------|-------------------|
| 2017 | 1300            | 165               |
| 2018 | 1500            | 250               |

### **AEV's supply chain – future of CellX manufacturing centre**

Electric cars are dependent on batteries. Manufacturing batteries is dependent on the supply of rare natural materials. Before its launch, the AEV4 had pre-orders of 300 000 units. AEV is unable to meet this demand due to a lack of capacity and supply constraints. Materials for the batteries produced at AEV's CellX manufacturing centre are imported from country C.

Akira has plans to expand the CellX manufacturing centre. This is crucial to Akira's target of selling 400 000 cars per year by 2021, which is 4 times the forecast production level for 2019. The expansion will double the size of the workforce. The Human Resources Director is preparing a workforce plan to contribute towards a successful expansion.

### **The external environment**

There is growing global concern over pollution caused by cars. Recent scientific reports have highlighted the impact of this on health. Air pollution in major cities regularly exceeds international guidelines on safe limits. In response, the Government of country K has announced that sales of new diesel cars will be banned from 2030. Some other countries are also planning similar regulations. In 2019, the Government of country K increased the rate of tax on petrol (gasoline) and diesel fuels. Country K's exchange rate has appreciated during 2019.

Country C is the biggest market for electric cars in the world. However, AEV only gained a 5% share of the electric car market, with sales of

10000 vehicles in the 12 months to September 2019. Country C imposes a 30% tax on all car imports.

## Raising finance

AEV has received \$1bn in government grants since 2010. It converted to a public limited company in 2011 to help provide finance for production of AEV1, its first car design. Akira has announced that AEV is to raise a further \$500m share capital in November to expand the CellX centre. Akira has always invested in new products rather than paying a dividend. The dividend proposed for 2019 will be the first ever payment to shareholders.

Akira reported in the most recent shareholder update that: 'The Board of Directors has the task of ensuring that management is working towards maximising shareholder value. AEV's immediate goal is to continue expanding in the electric car market. The impressive rise in AEV's share price, since the AEV4 was announced, reflects the long-term potential of the company. The current share price gives AEV a market capitalisation greater than any other manufacturing company in country K.'

## Appendix 1: Financial data

|   | September 30<br>2019 | September 30<br>2018 |
|---|----------------------|----------------------|
| Number of issued ordinary shares                              | 70m                  | 60m                  |
| Total equity  | \$2.5bn              | \$2bn                |
| Non-current liabilities                                       | \$3bn                | \$2.4bn              |
| Revenue (for the year ending)                                 | \$4.8bn              | \$2.4bn              |
| Cost of sales (for the year ending)                           | \$3.6bn              | \$1.92bn             |
| Operating profit (for the year ending)                        | \$60m                | \$(200m)             |
| Profit for the year (for the year ending)                     | \$48m                | \$(210m)             |
| Total dividends (proposed)                                    | \$10m                | None                 |
| Market share price  | \$130                | \$100                |
| Current ratio   | 1.2                  | 1.3                  |
| Net cash flow from operating activities (for the year ending) | \$(200m)             | \$(80m)              |

**Answer all questions in this section.**

**1 Analyse the likely impact on AEV's profit of intervention by governments in the car market. [8]**

**2 'AEV is unable to meet this demand due to a lack of capacity and supply constraints'. Other than expansion of CellX, discuss ways in which the Operations Management Department of AEV could solve this problem. [8]**

**3 a) Refer to Appendix 1. Calculate for 2019:**

**(i) the dividend yield [1]**

**(ii) the price earnings ratio [1]**

**(iii) the return on capital employed (ROCE). [2]**

**(b) Refer to 2(a) and any other information. Recommend whether potential investors should purchase shares in AEV. Justify your recommendation. [12]**

**4 (a) Refer to Table 1. Calculate the difference in labour turnover between 2017 and 2018. [4]**

**(b) Discuss the importance of human resource management to the success of the planned expansion of the CellX manufacturing centre. [12]**

**5 Discuss the significance of product development to AEV's future success. [12]**