Please check the examination details below before entering your candidate information

Candidate surname	Other names
StemUp Model Solution	

Pearson Edexcel
International Advanced Level

Centre Number	Candidate Number

Thursday 16 January 2020

Morning (Time: 2 hours)	Paper Reference **WEC13/01**

Economics

International Advanced Level
Unit 3: Business behaviour

You must have:
Source Booklet (enclosed)

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **ALL** questions in Section A and Section B.
- Answer **TWO** questions in Section C.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*

Information

- The total mark for this paper is 80.
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*
- Calculators may be used.

Advice

- Read each question carefully before you start to answer it.
- Check your answers if you have time at the end.

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SECTION A

Answer ALL questions in this section.

Questions must be answered with a cross in a box ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

1 In 2014 the Irish Government allowed private sector bus operators to bid for public transport contracts for the first time.

This is an example of

- ☒ **A** government failure
- ☒ **B** trade liberalisation
- ☒ **C** competitive tendering
- ☒ **D** regulation

(Total for Question 1 = 1 mark)

2 The table shows the market share by value of retail sales of grocery stores in the UK.

Store	March 2016 (%)	March 2017 (%)
Tesco	28.1	27.6
Sainsbury's	16.4	16.1
Asda	16.2	15.7
Morrisons	10.5	10.4
Co-op	6.1	6.1
Aldi	6.0	6.8
Others	16.7	17.3

(Source: https://www.statista.com/statistics/280208/grocery-market-share-in-the-united-kingdom-uk/)

From the data it can be deduced that

- ☒ **A** the 3-firm concentration ratio was 50.7% in March 2016
- ☒ **B** the 5-firm concentration ratio was 87.3% in March 2016
- ☒ **C** the 3-firm concentration ratio was 49.4% in March 2017
- ☒ **D** the 5-firm concentration ratio was 76.6% in March 2017

(Total for Question 2 = 1 mark)

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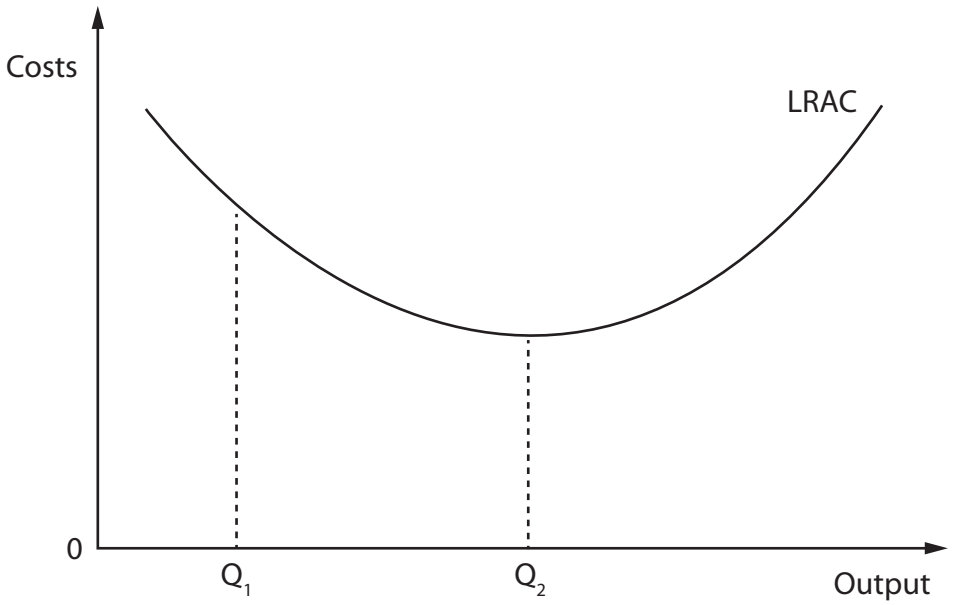
3 In 2016 workers in the USA were changing jobs less frequently than at any time since the 1970s.

Which **one** of the following can be deduced from the above information?

- ☒ **A** There had been a decrease in the skills of the workforce
- ☐ **B** There had been a decrease in house prices and rents
- ☐ **C** There had been an increase in transferable skills
- ☐ **D** There had been an increase in the number of job vacancies

(Total for Question 3 = 1 mark)

4 The diagram shows a long-run average cost curve for a firm.



Which **one** of the following must be true as output rises from point Q_1 to point Q_2?

- ☐ **A** There are diminishing returns
- ☒ **B** There are economies of scale
- ☐ **C** There are diseconomies of scale
- ☐ **D** There are falling total costs

(Total for Question 4 = 1 mark)

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5 A monopoly is operating at its revenue maximising output.

Which **one** of the following is true?

- ☒ **A** Marginal revenue is equal to marginal cost
- ☒ **B** Average revenue is equal to average cost
- ☒ **C** Average fixed costs are rising
- ☒ **D** Marginal revenue is zero

(Total for Question 5 = 1 mark)

6 Which **one** of the following is most likely to cause the demand for labour to be elastic?

- ☒ **A** Labour costs form a high proportion of total costs
- ☒ **B** Labour cannot be easily replaced by capital
- ☒ **C** Consumer demand for the final product is inelastic
- ☒ **D** A long training period is needed once workers have been recruited

(Total for Question 6 = 1 mark)

TOTAL FOR SECTION A = 6 MARKS

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SECTION B BEGINS ON THE NEXT PAGE.

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SECTION B

Study Figure 1 and Extracts A and B in the Source Booklet before answering Question 7.

Write your answers in the space provided on the following pages.

7 (a) With reference to Figure 1, calculate the percentage change in electric car sales from 2013 to 2017. You are advised to show your working.

(2)

(b) With reference to Extract A and Extract B, explain what is meant by *specialisation*.

(4)

(c) With reference to Extract A, examine the likely effect of a decrease in variable costs on Tesla's profits.

Illustrate your answer with an appropriate diagram(s).

(8)

(d) With reference to Extract B, analyse the relationship between price elasticity of demand and total revenue.

Illustrate your answer with an appropriate diagram(s).

(6)

(e) With reference to the information provided, discuss the significance of barriers to entry and exit in the electric car market for new entrants, such as Dyson.

(14)

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7 (a) With reference to Figure 1, calculate the percentage change in electric car sales from 2013 to 2017. You are advised to show your working.

(2)

Change in sales = 13 597 − 2 512 = 11 085 cars

% change = 11 085 ÷ 2 512 × 100

= +441.28% (a 441% increase)

(b) With reference to Extract A and Extract B, explain what is meant by *specialisation*.

(4)

Specialisation is when a firm concentrates its resources on producing a specific product, or a narrow range of products, rather than producing a wide range of goods. Within the firm it leads to a division of labour, where each worker carries out a specific task.

Tesla specialises in the production of electric cars, such as its mass market Model 3, while Dyson specialises in the design and manufacture of domestic appliances such as vacuum cleaners, hand dryers and hair dryers.

By specialising, workers and managers become more skilled at a narrow set of tasks, which increases efficiency and labour productivity and may lower long-run average costs through economies of scale. This has helped Dyson build a reputation for high quality, innovative products.

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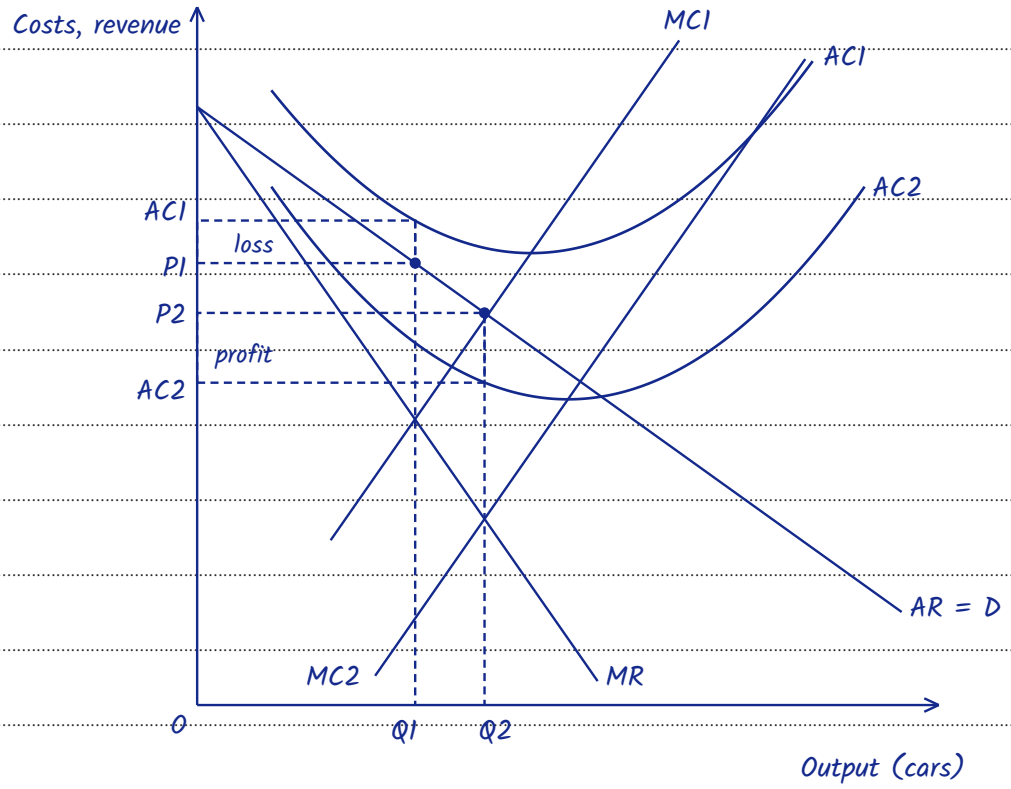
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(c) With reference to Extract A, examine the likely effect of a decrease in variable costs on Tesla's profits.

Illustrate your answer with an appropriate diagram(s).

(8)

Senior managers at Tesla are looking for ways to decrease variable costs by sourcing cheaper car parts and reducing the number of workers on production lines. Lower variable costs shift the MC and AC curves downwards, from MC1 and AC1 to MC2 and AC2.



Before the change Tesla maximises profit (or minimises its loss) where MR = MC1, producing Q1 at price P1. As AC1 is above AR at Q1, Tesla makes a loss shown by the top rectangle, consistent with its record quarterly loss of $709.6 million in quarter one of 2018. After the fall in variable costs, MR = MC2 at a higher output Q2 and a lower price P2, so total revenue changes from P1 × Q1 to P2 × Q2. AC2 is now below AR, so the loss becomes a supernormal profit, shown by the lower rectangle.

However, the effect depends on the magnitude of the cost cut: a small fall in variable costs

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may only reduce the loss slightly, as Tesla has recorded only two profitable quarters since 2010. The analysis also assumes Tesla can produce the extra output, yet it built only 2 425 cars in quarter four of 2017 when 20 000 Model 3 cars were planned for December alone. Cutting production line workers may reduce output further and worsen short-term losses. Cheaper car parts could lower quality, and with some buyers already cancelling orders, demand (AR and MR) could shift left, so profits may not rise at all.

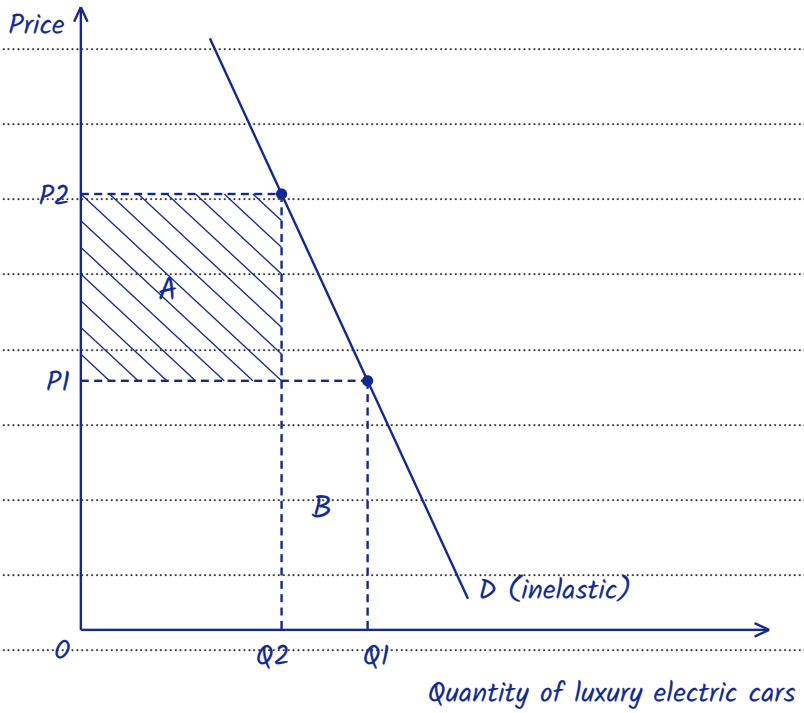
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(d) With reference to Extract B, analyse the relationship between price elasticity of demand and total revenue.

Illustrate your answer with an appropriate diagram(s).

(6)

Price elasticity of demand (PED) measures the responsiveness of quantity demanded to a change in price: PED = % change in quantity demanded ÷ % change in price. Total revenue = price × quantity sold.



Extract B states that demand is significantly more price inelastic in the luxury segment, where PED is between 0 and −1. If price rises from P1 to P2, quantity demanded falls by a smaller percentage, from Q1 to Q2. The revenue gained from the higher price on the cars still sold (area A) is greater than the revenue lost from fewer sales (area B), so total revenue rises. This is because buyers of luxury cars such as Tesla's Model S see few close substitutes and value the brand.

If demand were price elastic (PED less than −1), the opposite applies: a price rise would cause a more than proportional fall in quantity demanded, so total revenue would fall, while a price cut

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would raise revenue. As Jaguar, Porsche, Audi and BMW launch luxury electric models, there will be more substitutes, so demand may become more price elastic and Dyson would gain less revenue from raising its price.

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(e) With reference to the information provided, discuss the significance of barriers to entry and exit in the electric car market for new entrants, such as Dyson.

(14)

Barriers to entry are obstacles that make it difficult or costly for a new firm to enter a market, which existing firms do not face. Barriers to exit are costs or obstacles that prevent or impede a firm from leaving a market, such as sunk costs that cannot be recovered. High barriers reduce the contestability of the electric car market and protect the supernormal profits of incumbents.

The most significant barrier is the high initial capital cost. Dyson plans to invest $2.7 billion, split evenly between battery technology and vehicle development. Much of this is a sunk cost: specialist factories and research cannot easily be sold if Dyson fails, so it is also a barrier to exit. This risk is why Apple abandoned its electric car plans once the high capital costs and the complexity of production became apparent.

Economies of scale are a second barrier. Car production suits large-scale output, so established manufacturers such as BMW, Audi and Porsche have lower long-run average costs than a new entrant producing small volumes. Dyson would have to charge a higher price or accept losses until it reaches minimum efficient scale. Tesla also has a first-mover advantage, almost exclusively occupying the luxury niche.

Branding and distribution add to this. In the luxury market the badge on the front of the car is all-important, and a brand associated with vacuum cleaners may lack appeal, so Dyson may need heavy spending on advertising, another sunk cost. Finding buyers is also a challenge: Tesla had to spend heavily on its own retail network to compete with the established distribution channels of large manufacturers, and Dyson may need to do the same through forward vertical integration. Patents held by incumbents could also restrict Dyson's battery and vehicle designs.

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However, these barriers may be less significant for Dyson than for a typical new entrant. Dyson has been successful since 1991, employs 12 000 workers and has built a reputation for high quality, innovative products, so it is likely to have the retained profits to fund the $2.7 billion investment. Its expertise in battery and motor technology from domestic appliances is transferable, and its previous success when marketing new products may be repeated, reducing the branding barrier.

The significance also depends on the time period and the growth of the market. UK electric car registrations rose by 491% between 2013 and 2017 (Figure 1), so a rapidly growing market leaves room for new entrants without having to take sales from incumbents. Dyson can also learn from Tesla's mistakes, such as its failure to meet production targets. In the long run, as more firms enter and the technology matures, barriers may fall. Also, demand in the luxury segment is price inelastic, so non-price factors like quality and design matter more than low costs, which suits Dyson.

Overall, barriers to entry and exit are highly significant: the high sunk costs, economies of scale enjoyed by established manufacturers and intense competition from Jaguar, Porsche, Audi and BMW mean entry is very risky, as Apple's withdrawal shows. However, they are probably less of an obstacle for Dyson than for most firms because of its finance, technology and reputation. The main problem is not entering the market but succeeding once inside it, which will depend on whether consumers accept the Dyson badge on a luxury car.

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TOTAL FOR SECTION B = 34 MARKS

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SECTION C BEGINS ON THE NEXT PAGE.

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SECTION C

Answer TWO questions from this section.

8 In July 2017 the German retailer Metro Group demerged into two independent companies. Its wholesale and food division became New Metro and a separate consumer electronics business, CECONOMY, was formed.

Evaluate the possible benefits of a demerger for the business **and** its workforce.

Illustrate your answer with an appropriate diagram(s).

(Total for Question 8 = 20 marks)

9 By 2017 Ethiopia was one of very few African countries that had not privatised its telecommunications market and introduced competition. The state-owned company, Ethio Telecom, was the only firm in the market.

Evaluate the likely benefits of a monopoly to its consumers.

Illustrate your answer with an appropriate diagram(s).

(Total for Question 9 = 20 marks)

10 In 2018 the Malaysian Government increased the monthly minimum wage for garment and textile workers from MYR 1 000 to MYR 1 500.

Evaluate the benefits of an increase in the minimum wage on businesses **and** workers.

Illustrate your answer with an appropriate diagram(s).

(Total for Question 10 = 20 marks)

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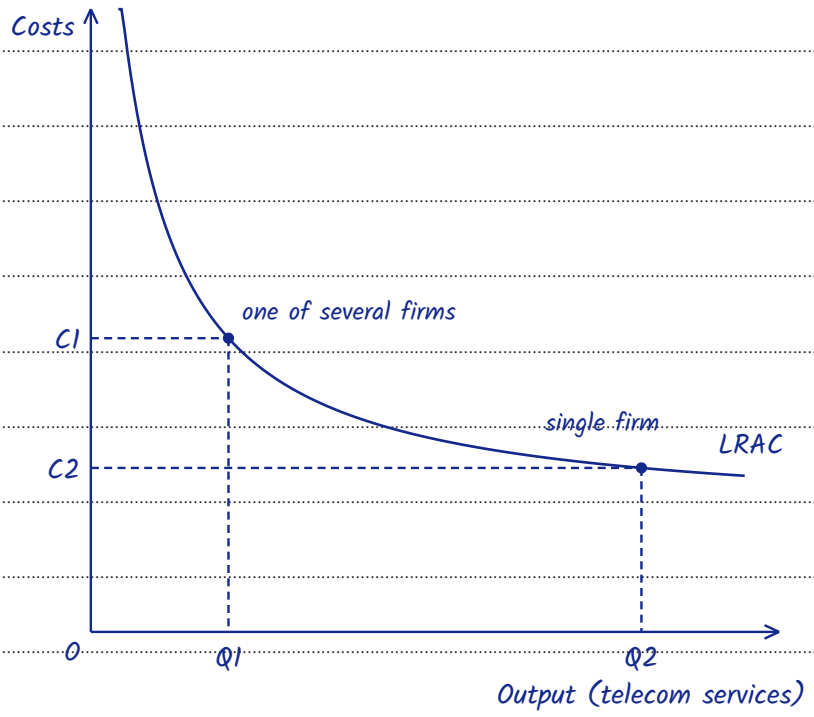
Write the answer to your FIRST chosen question here

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Chosen question number: **Question 8** ☐ **Question 9** ☒ **Question 10** ☐

A monopoly is a market with a single supplier, so the firm is the industry, faces the downward-sloping market demand curve and is protected by high barriers to entry. Ethio Telecom, the state-owned company, is the only firm in Ethiopia's telecommunications market, so it is a pure monopoly.

The first benefit is lower costs through economies of scale. Telecommunications needs very high fixed costs, such as mobile masts, fibre-optic cables and network software, while the marginal cost of an extra call or user is very low. This means the long-run average cost (LRAC) curve falls over a wide range of output, making the market a natural monopoly.

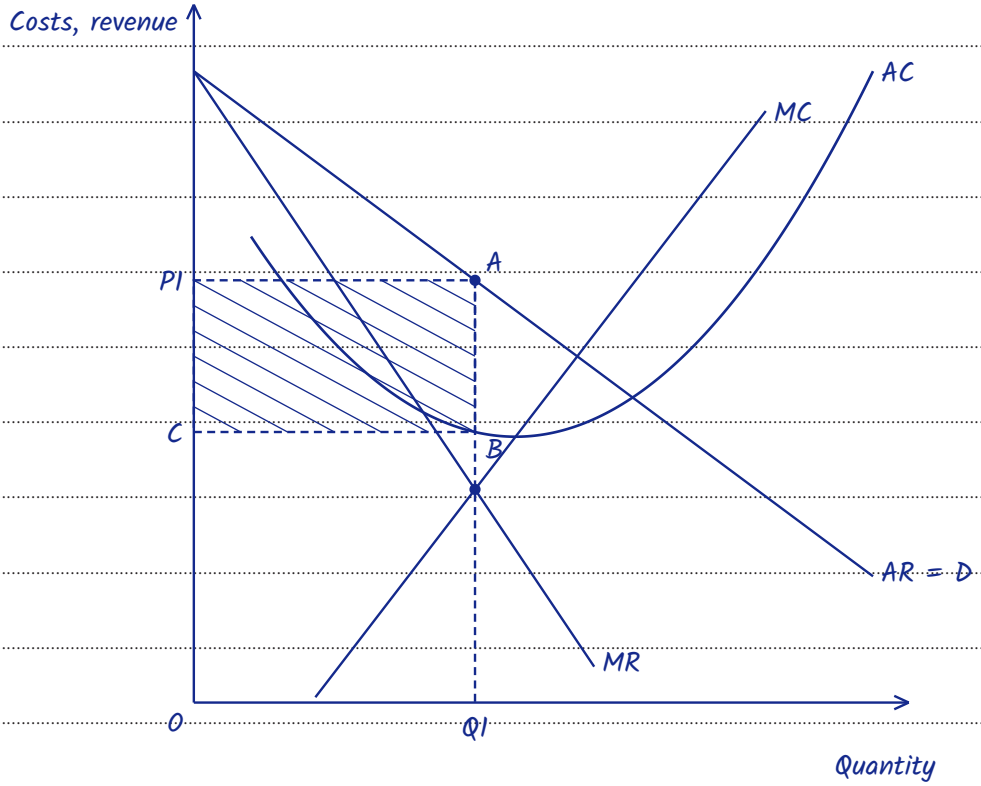


If the market were split between several competing firms, each would produce only a small output such as Q1 at a high average cost C1, and each would duplicate the expensive network.

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As the only supplier, Ethio Telecom can produce the whole market output Q2 at the much lower average cost C2. If these cost savings are passed on, consumers pay lower prices, consumer surplus rises and the country avoids wasting resources on duplicate networks, so there is greater productive efficiency.

The second benefit is dynamic efficiency. Because barriers to entry protect it, a monopoly can earn supernormal profit in the long run, shown by the shaded area PIABC below. These profits can be reinvested in research and development and new technology, such as 4G networks and wider rural coverage, giving consumers better quality and new services over time. A monopoly also knows it will not face competition that copies its innovations, so it has the security to make large, long-term investments.



Thirdly, a monopoly may not exploit consumers if the market is contestable or regulated. If it fears that firms could enter after privatisation, Ethio Telecom may keep prices low (limit pricing) and keep introducing new services to deter entry. As it is state-owned, its objective

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may be social welfare rather than profit, so the government can require it to set price equal to marginal cost (allocative efficiency) or even to subsidise services, providing affordable access to poorer and rural consumers. A monopoly may also use price discrimination, for example cheaper off-peak or student tariffs, so that some consumers on lower incomes pay less and output is higher than with a single price.

However, these benefits are far from certain. A profit-maximising monopoly produces where MR = MC, at Q1 and P1, so price is above marginal cost and output is restricted, causing allocative inefficiency and a deadweight loss of consumer welfare. Consumers pay higher prices and have less choice than in a competitive market. The diagram also shows output is not at the minimum point of AC, so it is not productively efficient either.

Secondly, without the pressure of competition a monopoly may suffer from X-inefficiency, so its actual costs are above the lowest possible AC, wiping out the economies of scale benefit. This is a particular risk for a state-owned firm like Ethio Telecom, which has no shareholders demanding profit and may be bureaucratic or overstaffed. Supernormal profits might also be taken by the government as revenue, or paid out, rather than reinvested, so dynamic efficiency does not happen.

Thirdly, telecommunications is a fast-moving market. With no rivals there is less incentive to innovate, so consumers may face out-dated technology, poor coverage and poor service quality. The fact that very few other African countries have kept a telecom monopoly suggests that competition has generally brought lower prices and faster improvements for consumers.

In conclusion, the benefits of a monopoly to consumers depend mainly on its objectives and on regulation. Because telecoms has very large fixed costs, a single network can deliver lower

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average costs, and a state-owned firm has the potential to keep prices low. However, in practice the lack of competition is likely to lead to higher prices, X-inefficiency and slow innovation. The benefits are only likely to outweigh the costs in the short run, or if Ethio Telecom is effectively regulated, for example with price caps and quality targets. In the long run, consumers would probably gain more if the market were opened to competition while the network infrastructure stayed shared.

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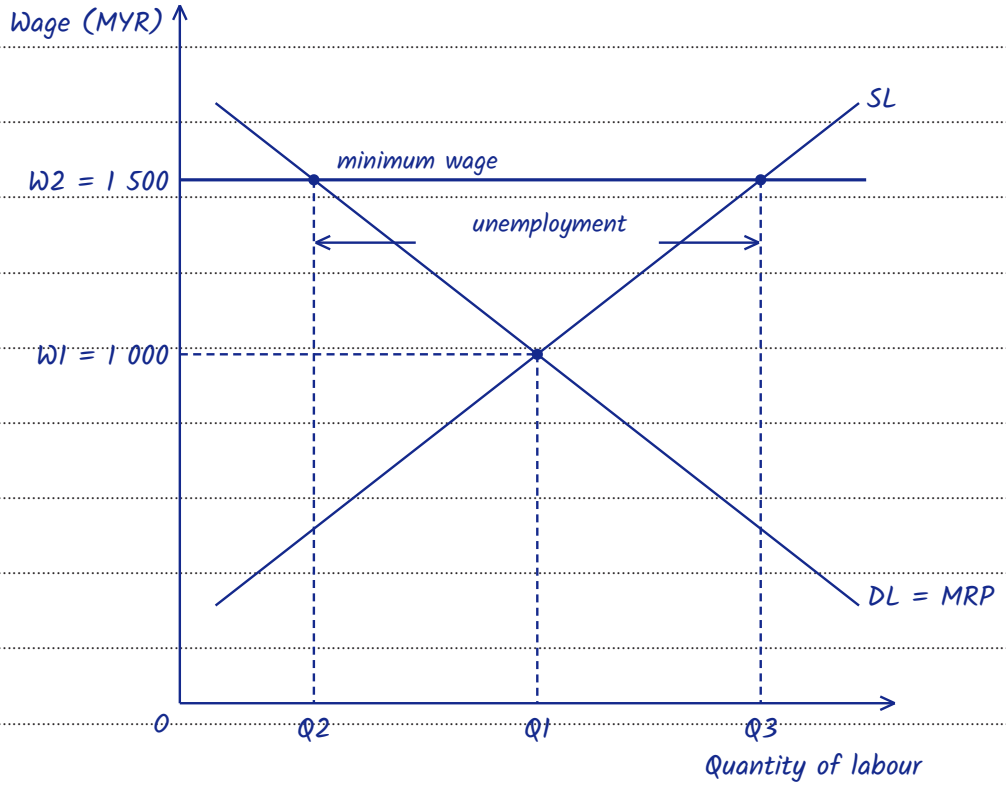
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Write the answer to your SECOND chosen question here

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Chosen question number: **Question 8** ☐ **Question 9** ☐ **Question 10** ☒

A minimum wage is the lowest wage rate that employers are legally allowed to pay their workers. In 2018 Malaysia raised the monthly minimum wage for garment and textile workers from MYR 1 000 to MYR 1 500, an increase of 50%. If the minimum wage is set above the market equilibrium wage, it raises the wage from W1 to W2 in the diagram.



The main benefit to workers is higher income. Those garment workers who keep their jobs see their pay rise by MYR 500 a month, from W1 to W2, so their purchasing power and living standards rise and fewer households are in poverty. This is a large gain because garment and textile workers are usually among the lowest paid. Workers also become less dependent on government benefits, and higher pay can increase motivation and job satisfaction. It may encourage more people to join the labour force and pursue training and promotion, as shown by

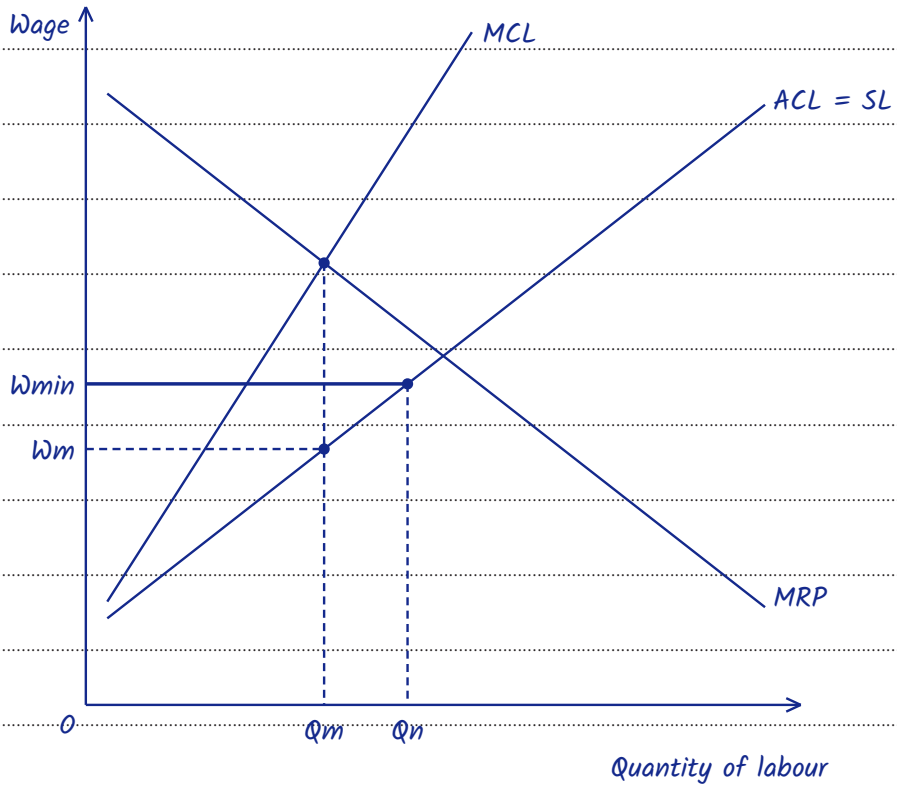
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the extension of labour supply from Q1 to Q3.

Businesses can also benefit. Higher pay acts as an efficiency wage: better-motivated workers are more productive, so output per worker rises and unit labour costs may rise by less than 50%, or even fall. Labour turnover falls because workers are more likely to stay with their employer, which reduces recruitment and training costs and gives firms a more experienced, loyal workforce. In addition, low-paid workers spend a high proportion of any extra income, so demand for consumer goods in Malaysia rises, increasing firms' revenue and profit. The rise in labour costs may also push firms to invest in capital and new technology, raising efficiency in the long run.

Furthermore, if garment firms are monopsony employers, for example a single large factory in a town, a minimum wage can raise both wages and employment, as shown below.



A monopsonist employs where MCL = MRP at Qm and pays only Wm. A minimum wage at

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Wmin makes the marginal cost of labour constant at Wmin up to the supply curve, so the firm employs Qn workers: both the wage and employment rise, and the firm's exploitation of workers is reduced.

However, in a competitive labour market the drawbacks are significant. At W2 firms demand only Q2 workers, so employment falls from Q1 to Q2 and there is unemployment of Q3 – Q2. Wages are a high proportion of total costs in garment making, so demand for labour is likely to be elastic and job losses could be large. For businesses, a 50% rise in labour costs raises costs of production, and as Malaysian garments compete in international markets with low-wage countries such as Bangladesh and Vietnam, firms may lose price competitiveness, cut output or relocate abroad. Small firms are especially vulnerable and some may leave the market.

Workers may also not gain as much as expected. Employers may expect them to work harder to cover the higher costs, or cut overtime and non-wage benefits. Higher costs may be passed on as higher prices, and higher spending may cause demand-pull inflation, so real wages rise by less than 50%. Some firms may move work into the informal sector to avoid paying the minimum, especially if the government enforces it weakly.

In conclusion, the benefits depend on the size of the increase relative to the market wage, on the elasticity of demand for labour and on the structure of the market. A 50% rise is very large, so in a competitive, export-based industry it is likely to cause some job losses, meaning the benefits go mainly to those who keep their jobs. However, if productivity rises through efficiency wage effects, or firms have monopsony power, both workers and businesses could gain. The overall effect is therefore most likely to be positive for workers in the short run, but the long-run benefit for businesses depends on whether they can raise productivity enough to offset the higher wage costs.

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Economics

International Advanced Level
Unit 3: Business behaviour

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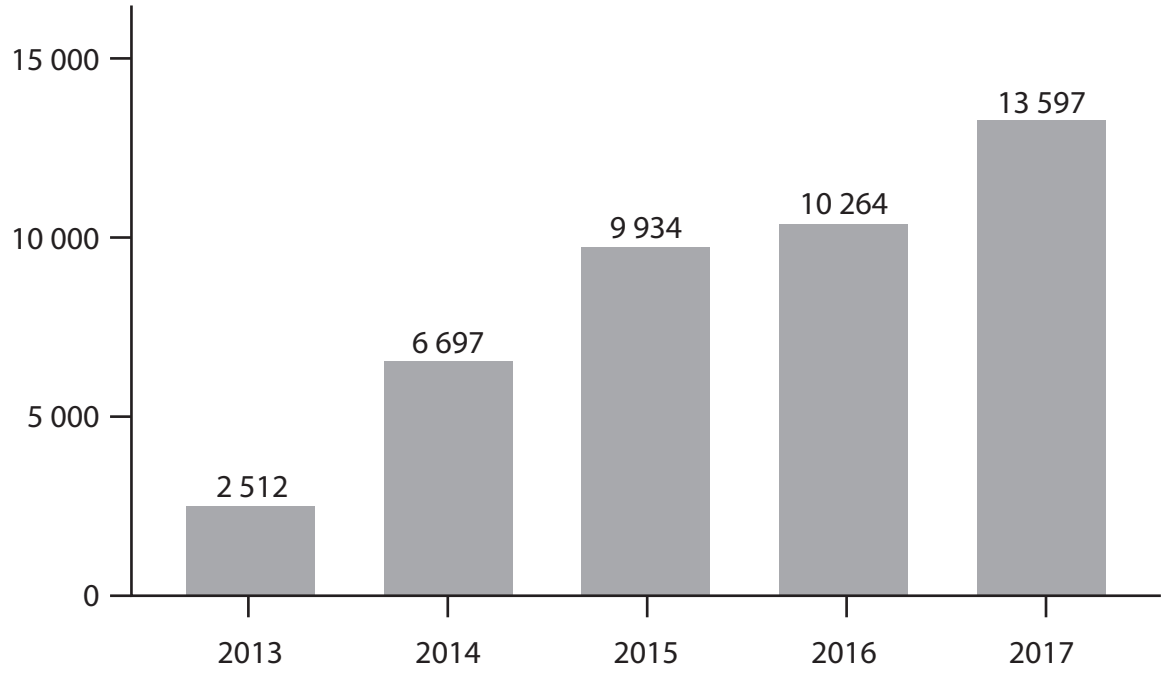
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Sources for use with Section B.

The electric car market

Figure 1 UK electric car registrations, 2013 – 2017



Extract A Financial performance of Tesla

Tesla is a large American corporation that specialises in the production of electric cars. In January 2017 the company had a 30% market share for electric cars in the USA.

Between 2010 and March 2018, Tesla recorded only two profitable quarters. The company made its biggest quarterly loss of $709.6 million in quarter one of 2018. It was failing to produce enough of its 'Model 3' mass market electric car. For example, 20 000 'Model 3' cars should have been produced in December 2017. However, during the whole of quarter four of 2017, Tesla manufactured only 2 425 cars.

The 'Model 3' is the most important part of Tesla's plan to become a mass market car manufacturer. At one stage, it had more than 500 000 potential consumers on its waiting list. However, in April 2018 the company admitted that some buyers had cancelled their orders for Tesla cars.

Senior managers have been looking for ways of decreasing the company's variable costs. This may require the sourcing of cheaper car parts and reducing the number of workers on production lines.

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Extract B New entrants in the luxury electric car market

Dyson was established in 1991. It has become a very successful technology company with its headquarters in the UK. It specialises in the design and manufacture of domestic appliances such as vacuum cleaners, hand dryers and hair dryers. In 2018 Dyson employed 12 000 workers worldwide. The company has built a reputation for creating and producing a range of high quality and innovative products.

Its latest project is to design and produce an electric vehicle. Dyson plans to invest $2.7 billion, split evenly between battery technology and vehicle development. Initially, the company will be targeting the luxury segment of the electric car market. This is a niche that Tesla almost exclusively occupies. Demand is significantly more price inelastic in this part of the market.

However, it is possible that barriers to entry and exit could create problems for Dyson. The experience of Apple may prove to be relevant. Apple abandoned its plans to manufacture electric cars when both the high initial capital costs and the complexities of the production process became apparent.

The badge on the front of a luxury car is all-important. Possibly a Dyson brand associated with domestic appliances might lack sufficient appeal for potential consumers. However, Dyson's previous success when marketing new products may be repeated in the electric car market.

There is also likely to be significant competition in the luxury electric car market. For example, Jaguar is about to launch the iPace, a competitor to Tesla's Model S. Porsche, Audi and BMW all have new luxury electric car models due to be on sale by late 2020. Several other companies are set to enter the market for luxury electric cars.

Finding buyers is another challenge. For example, Tesla had to spend heavily on setting up its own retail network to compete with the established distribution channels of the large car manufacturers.

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Acknowledgements

Figure 1 based on data taken from www.smmt.co.uk/vehicle-data/evs-and-afvs-registrations/

Extract A adapted from https://www.theguardian.com/technology/2018/may/02/tesla-loss-model-3-elon-musk

Extract B adapted from Dyson's car faces low barriers to entry but high barriers to success © The Economist – September 2017 https://www.economist.com/britain/2017/09/30/dysons-car-faces-low-barriers-to-entry-but-high-barriers-to-success