Please check the examination details below before entering your candidate information

Candidate surname	Other names
StemUp Model Solution	

Centre Number | Candidate Number

Pearson Edexcel Level 3 GCE

Wednesday 15 May 2024

Morning (Time: 2 hours)

Paper reference **9EC0/01**

Economics A

Advanced
PAPER 1: Markets and business behaviour

You must have a calculator.

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.
- There are three sections in this question paper. Answer **all** questions from Section A and Section B. Answer **one** question from Section C.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- Calculators may be used.

Information

- The total mark for this paper is 100.
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*

Advice

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

Turn over ▶

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SECTION A

Answer ALL questions. Write your answers in the spaces provided.

Some 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 ☒.

You are advised to spend 30 minutes on this section.

Use the data to support your answers where relevant.
You may annotate and include diagrams in your answers.

1 The table below shows price elasticity of demand for bus tickets in London 2021

Age	Price elasticity of demand
18+ Student	–0.7
Adult	–0.4

(Source adapted from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/669090/youth-travel-concessions-price-elasticity.pdf and https://tfl.gov.uk/fares/find-fares/bus-and-tram-fares#on-this-page-4)

(a) Explain **one** likely reason for the difference in the price elasticity of demand for the 18+ student bus ticket and the adult bus ticket.

(4)

Price elasticity of demand (PED) measures the responsiveness of quantity demanded to a change in price: % change in Qd ÷ % change in price. Demand for 18+ student tickets (–0.7) is price inelastic but less inelastic than demand for adult tickets (–0.4), which are more price inelastic.

One likely reason is the closeness of substitutes. Students have more substitutes available: they can walk, cycle or share lifts to college, and they have more flexible timetables, so when fares rise many switch away from the bus. Adults are more bus dependent, as they need to get to work on time, so they have fewer substitutes and keep buying tickets.

For example, a 10% increase in price leads to a 7% fall in demand for student tickets but only a 4% fall for adult tickets.

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(b) In 2021, the adult 7-day bus ticket was £21.90. Bus ticket prices in London in 2022 increased by 4.8%. Ceteris paribus, which **one** of the following is the percentage decrease in the 7-day bus ticket demand by adults?

(1)

- ☐ **A** 0.08
- ☒ **B** 1.92
- ☐ **C** 3.36
- ☐ **D** 12.00

(Total for Question 1 = 5 marks)

2 The table below shows price elasticity of supply for housing in the US in 2020.

US State	Price elasticity of supply
New York	+0.5
Texas	+1.8

(Source adapted from: https://bankunderground.co.uk/2020/02/25/the-declining-elasticity-of-us-housing-supply/)

(a) With reference to the data above, explain **one** likely reason for the difference in the price elasticity of supply.

(4)

Price elasticity of supply (PES) measures the responsiveness of quantity supplied to a change in price: % change in Qs ÷ % change in price. Housing supply in New York (+0.5) is price inelastic, while in Texas (+1.8) it is price elastic.

One likely reason is the availability of land. New York is densely built up, so there is a shortage of land to build on, and strict planning regulations mean it takes a long time to get planning permission and build new homes. So when house prices rise, builders cannot quickly increase supply. Texas has large amounts of spare, cheap land and fewer restrictions, so builders can respond quickly to higher prices.

For example, a 10% rise in house prices leads to only a 5% increase in quantity supplied in New York, but an 18% increase in Texas.

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(b) In Texas the price elasticity of supply is +1.8.
Which **one** of the following is the percentage increase in price if the quantity of housing supplied in Texas is increased by 12%?

(1)

- ☒ **A** 0.15
- ☒ **B** 1.50
- ☒ **C** 6.67
- ☒ **D** 21.60

(Total for Question 2 = 5 marks)

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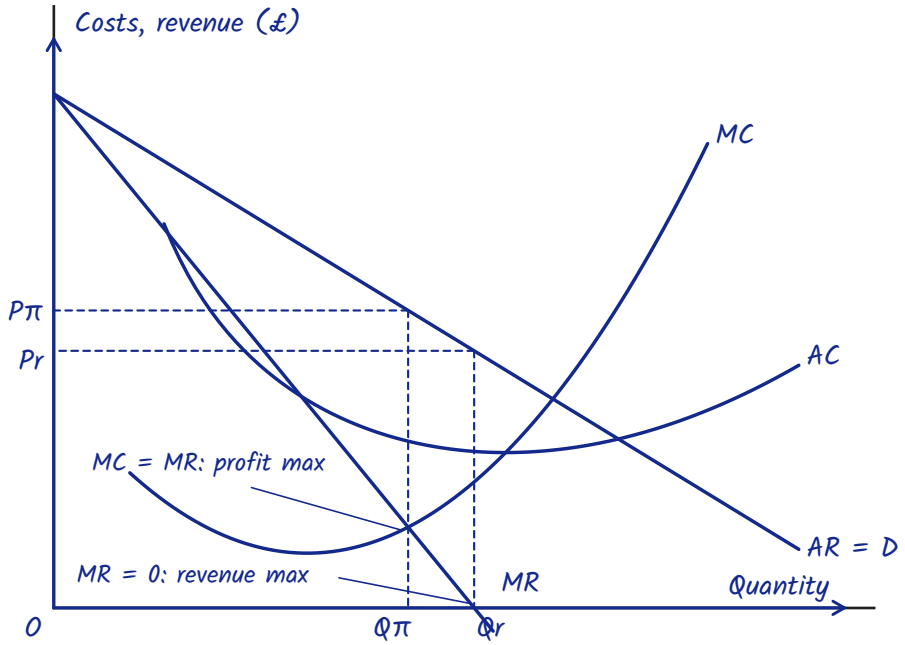
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3 Peloton is a firm which makes exercise bikes. Peloton's objective is to prioritise selling fitness services rather than to achieve short-term profit maximisation.

(Source adapted from: https://www.forbes.com/sites/shelleykohan/2022/01/26/peloton-prioritizes-access-and-acquisition-over-profits/?sh=13d8ee474f40)

(a) Draw a cost and revenue diagram to illustrate the different business objectives: profit maximisation and revenue maximisation.

(4)



(b) If Peloton changes its objective to sales maximisation, then without making a loss, it operates at an output where:

(1)

- ☒ **A** average cost equals average revenue
- ☐ **B** average cost is minimised
- ☐ **C** price elasticity of demand is equal to -1
- ☐ **D** price equals marginal cost

(Total for Question 3 = 5 marks)

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4 In 2022 the government announced that the maximum undergraduate tuition fee for universities in England will remain at £9 250 per year for the next two years.

(Source adapted from: https://questions-statements.parliament.uk/written-statements/detail/2021-10-21/HCWS339)

(a) Explain **one** likely reason for the maximum price for an undergraduate university programme.

(4)

A maximum price is a legal price ceiling above which the price cannot rise; to be effective it is set below the free market equilibrium price. Here the maximum tuition fee is held at £9 250 per year for the next two years.

One likely reason is to make university more affordable for students, especially those from low-income families. Keeping the fee below the market price causes an extension in demand for undergraduate places, so a higher proportion of young people go to university.

This increases the skills and human capital of the future workforce, raising labour productivity. Education is a merit good with external benefits, such as a more productive economy and higher future tax revenue, so the maximum price encourages consumption closer to the socially optimum level.

(b) Which **one** of the following is an example of government failure associated with the maximum price?

(1)

- ☐ **A** Contraction in demand
- ☒ **B** Distortion of price signals
- ☐ **C** Excess supply
- ☐ **D** Extension in supply

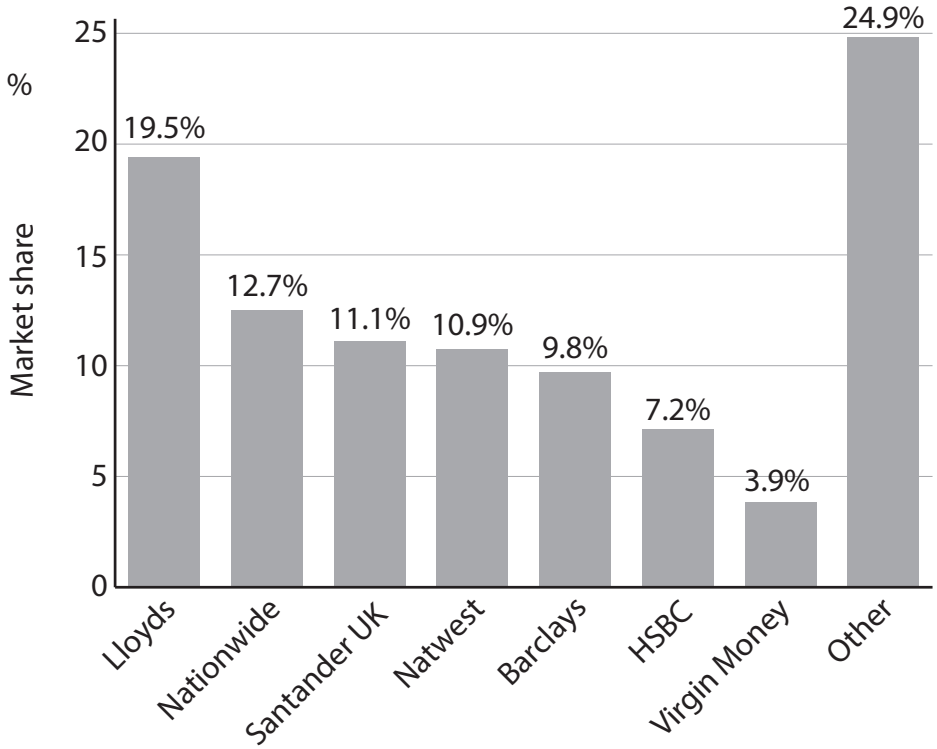
(Total for Question 4 = 5 marks)

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5 The graph below shows the largest mortgage lenders in the United Kingdom (UK) in 2020, by market share.



(Source adapted from: https://www.statista.com/statistics/727348/uk-banks-gross-lending-market-share/)

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(a) With reference to the information on the preceding page, explain the market structure of mortgage lending in the UK.

(4)

The market structure of UK mortgage lending is an oligopoly: a market dominated by a few large firms.

The market is highly concentrated. Lloyds is the market leader with 19.5%, and the four-firm concentration ratio is 19.5 + 12.7 + 11.1 + 10.9 = 54.2%, while the five-firm ratio is 54.2 + 9.8 = 64%. So the five largest lenders have nearly two-thirds of the market.

There are high barriers to entry, such as the large amount of capital needed, strict financial regulation and the strong brand loyalty enjoyed by established banks. The firms are interdependent: if Lloyds cuts its mortgage interest rates, rivals such as Nationwide and Santander are likely to respond, so firms often compete through non-price competition.

(b) The value of all mortgage loans was £1 601 billion at the end of 2020.

Which **one** of the following is the value of Lloyds' market share?

(1)

☒	**A** £82 billion
☒	**B** £126 billion
☒	**C** £312 billion
☒	**D** £8 210 billion

(Total for Question 5 = 5 marks)

TOTAL FOR SECTION A = 25 MARKS

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SECTION B

Read the following extracts (A to D) before answering Question 6.

Write your answers in the spaces provided.

You are advised to spend 1 hour on this section.

Question 6

The electronics industry

Extract A

Rising prices of electronics devices

Computer chips act as the "brain" in all electronic devices. Makers of electronic devices face significant increases in the price of computer chips as they try to source enough components, including games consoles, computers and smartphones. The price of some computer chips has jumped from $0.20 each to more than $1. The prices of electronic devices have risen for a range of reasons, including higher material costs and the growing popularity of home entertainment.

(Source: adapted from https://www.ft.com/content/8c718a74-cd95-4b2d-ac0e-de0682e4e3cd)

Extract B

Labour shortages in the electronics industry

Every year, highly skilled and experienced employees in the electronics industry retire. The current tight labour market has made an already difficult problem of hiring suitable engineering and computing graduates worse, especially since the nature of the industry is becoming increasingly technical. As production becomes more automated, electronics jobs are more likely to require problem solving and analysis than just assembling skills. However, artificial intelligence and other new technologies can help fill some of the skills gap. In addition, by giving hazardous, repetitive, grimy work to robots, human beings can focus on more creative, analytic tasks.

(Source: adapted from https://www.ericsson.com/en/blog/2021/12/manufacturing-problems-that-keep-ceos-awake-at-night)

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Extract C

Serious concerns over merger

The Competition and Markets Authority (CMA) has said the takeover of the Cambridge-based computer chip designer Arm by its US rival Nvidia raises serious competition concerns. It has launched an in-depth investigation into the £29.5 billion deal. The CMA said the merger could reduce choice for firms reliant on computer chips, pushing up prices of products including cars, games consoles and mobile phones. In addition, severe global shortages of computer chips has disrupted the manufacture of a range of electronic goods pushing up costs for firms.

Despite this, large electronics firms benefit from economies of scale and are able to finance high-risk innovation and global advertising.

(Source adapted from: https://www.theguardian.com/business/2021/aug/20/watchdog-expresses-concerns-over-nvidias-takeover-of-uk-chip-designer-arm)

Extract D

The growing problem of electronic waste

Electronic waste is the fastest growing element of the world's household waste problem. The problem in the UK is particularly bad. The country produces 24.9 kg a person a year – nearly 10 kg more than the EU average. In 2018, 1.2 million tonnes of electrical devices were sold in the UK, and 500 000 tonnes made it to recycling centres. Some appliances are more likely to be recycled than others. The recycling rate for big appliances, such as fridges and cookers, is about 80%. Of small appliances, barely one in five makes it to the recycling centre. As items such as toasters, hairdryers and headphones fit into household bins, they are not often taken to a recycling centre. This causes many problems, such as hazardous substances contaminating soil, water pollution and other external costs.

Policy makers have a long list of options to combat this problem including stricter regulation, environmental education, taxation and financial incentives. In some countries, for example, household rubbish is weighed and recycling initiatives are subsidised.

(Source adapted from: https://www.ft.com/content/26e1aa74-2261-11ea-92da-f0c92e957a96)

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6 (a) With reference to Extract A, explain the likely reasons for the change in price of electronic devices. Include a supply and demand diagram in your answer.

(5)

(b) Examine **two** factors which might influence the supply of labour in the electronics industry.

(8)

(c) Assess whether firms in the electronics industry benefit from economies of scale.

(10)

(d) Discuss the likely concerns of the competition authorities regarding the proposed merger of the two companies referred to in Extract C.

(12)

(e) With reference to Extract D, discuss possible methods of government intervention to reduce electronic waste.

(15)

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6 (a) With reference to Extract A, explain the likely reasons for the change in price of electronic devices. Include a supply and demand diagram in your answer.

(5)

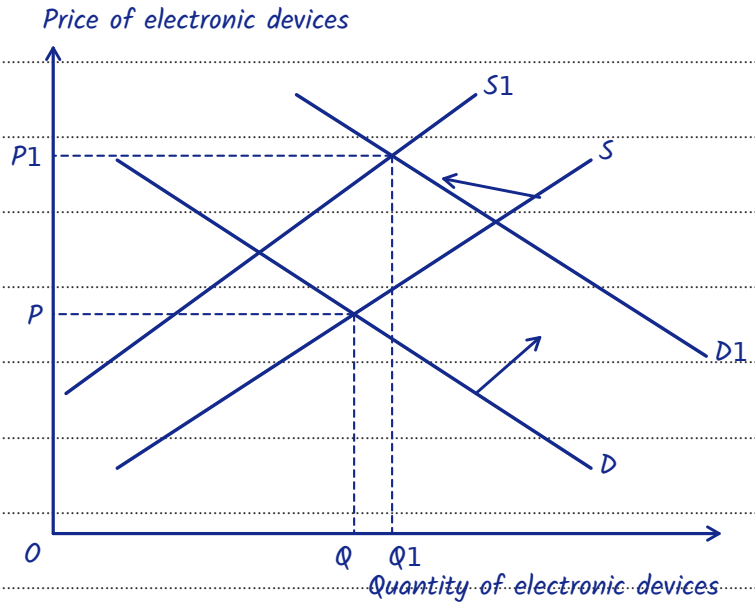
The price of electronic devices has risen because of both a decrease in supply and an increase in demand.

Supply has fallen because of higher costs of production. Computer chips are a key component in games consoles, computers and smartphones, and their price has jumped from $0.20 each to more than $1, an increase of 400%, together with higher material costs. This shifts the supply curve left from S to S1.

At the same time, the growing popularity of home entertainment has increased demand, shifting the demand curve right from D to D1.

At the original price P there is now excess demand, so the price is bid up to P1.

Both shifts push price up, so the price of electronic devices rises from P to P1, as shown in my diagram.



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(b) Examine **two** factors which might influence the supply of labour in the electronics industry.

(8)

The supply of labour is the number of workers willing and able to work in an industry at a given wage rate.

One factor is demographics and retirement. Extract B states that every year highly skilled and experienced employees in the electronics industry retire. As these workers leave, the supply of skilled labour falls, shifting the labour supply curve to the left, which raises wage rates and makes it harder to fill vacancies.

However, the government could correct this, for example by raising the state retirement age, while firms could offer flexible or part-time contracts to keep older workers. The wage rate also matters: a shortage pushes wages up, which in the long run gives an incentive for more people to train and enter the industry, increasing supply.

A second factor is education, skills and the length of training. The industry is becoming increasingly technical, with jobs requiring problem solving and analysis rather than just assembling skills. There are too few engineering and computing graduates, partly because a low proportion of students, especially female students, study STEM subjects, and these skills take years to acquire. This makes the labour supply small and inelastic, so the tight labour market makes hiring even harder.

However, the impact may be reduced as artificial intelligence and new technologies can help fill some of the skills gap. Giving hazardous, repetitive and grimy work to robots reduces the health risks of the job and makes the work more creative and analytical, so it may become more attractive, increasing labour supply. Government education and training reforms could also help, although these take many years.

Overall, labour supply depends on a combination of factors, but the shortage of skilled graduates is likely to be the most significant.

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(c) Assess whether firms in the electronics industry benefit from economies of scale.

(10)

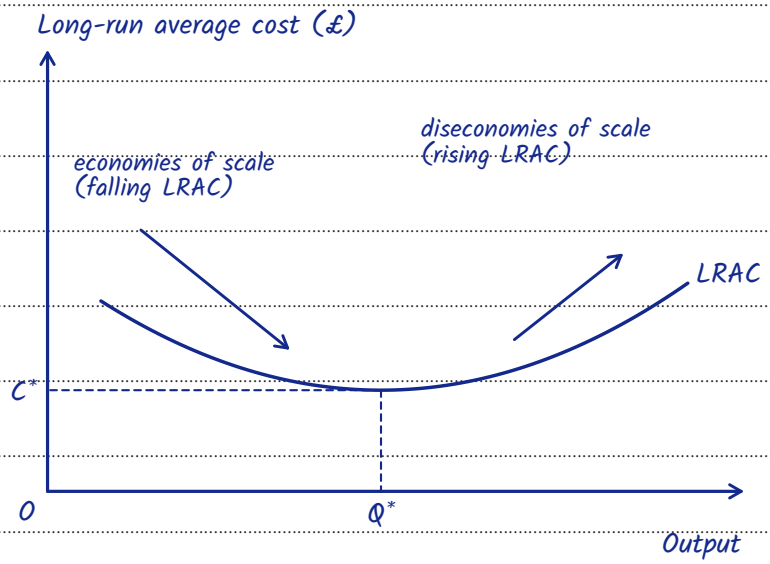
Economies of scale are the cost advantages a firm gains as it increases its scale of production, so that long-run average cost (LRAC) falls as output rises, up to Q^* in my diagram.

Large electronics firms gain purchasing economies by bulk buying computer chips and other components, so they get discounts from suppliers. This is important when the price of some chips has risen from $0.20 to more than $1. Technical economies come from using highly automated production lines and robots, as Extract B describes, which have high fixed costs that can be spread over millions of devices, and from greater investment in R&D. Financial economies mean large firms can borrow from banks at lower interest rates, and Extract C states they are able to finance high-risk innovation and global advertising. Marketing economies arise as the cost of global advertising is spread over many units sold, while managerial economies come from specialisation and the division of labour. A merger such as Nvidia and Arm could also remove wasteful duplication of research, for example into AI for games consoles, data centres and smartphones.

Lower average costs allow firms to cut prices and gain market share, or to make supernormal profits that fund further innovation.

However, firms may not always benefit. If they grow beyond Q^* they experience diseconomies of scale, such as communication and coordination problems in large multinational firms, and LRAC rises. Purchasing economies may not be realised if firms buy from a monopoly supplier of chips, which has strong market power over price, and global supply chain problems and severe chip shortages have pushed up costs for all firms. Global advertising may have limited benefits because language and cultural barriers mean adverts must be adapted for each country. Large incumbent

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firms facing little competition may also become x-inefficient.

Furthermore, many firms in the electronics industry are small, specialist designers, so they cannot achieve economies of scale to the same extent. Overall, large electronics firms clearly benefit, especially from purchasing and technical economies, but dynamic efficiency from innovation may be more significant than economies of scale in such a fast-changing industry.

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(d) Discuss the likely concerns of the competition authorities regarding the proposed merger of the two companies referred to in Extract C.

(12)

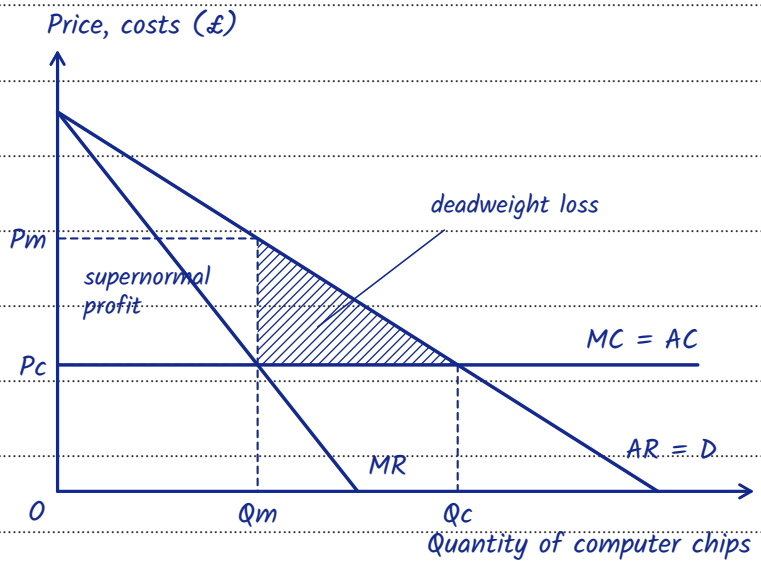
The Competition and Markets Authority (CMA) investigates mergers that may lead to a substantial lessening of competition. It has launched an in-depth investigation into the £29.5 billion takeover of the Cambridge-based chip designer Arm by its US rival Nvidia.

The first concern is greater monopoly power leading to higher prices. Arm licenses its chip designs to many companies, including rivals of Nvidia. After the merger, Nvidia could restrict access to these designs or charge rivals more, so firms reliant on computer chips would have less choice, pushing up prices of cars, games consoles and mobile phones. My diagram shows that a profit-maximising firm with monopoly power produces where MC = MR, at Qm and Pm, rather than at the competitive output Qc and price Pc. Consumers pay a higher price for a lower output, consumer surplus falls, the firm earns supernormal profit and there is a deadweight loss, so the market is allocatively inefficient (P > MC).

A second concern is less competition and higher barriers to entry. New chip designers would find it harder to enter if the merged firm controls key technology, and with fewer firms there is a greater risk of collusion and other anti-competitive practices. Without competitive pressure, the merged firm may become x-inefficient and experience diseconomies of scale, so costs rise, there is less innovation and quality and customer service may fall. Decisions may also put shareholders before consumers.

However, the merger may bring benefits. The combined firm could gain economies of scale, lowering average costs and possibly prices while increasing output. Extract C states that large electronics firms are able to finance high-risk innovation and global advertising, so supernormal profits could be reinvested in R&D, leading to dynamic

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efficiency, higher quality products and more choice, and synergies between Nvidia's and Arm's technology could speed up innovation.

In addition, the merger may not reduce competition much: the global chip market includes other large rivals such as Intel, AMD and Qualcomm, so the merged firm may still face strong competition. The CMA investigation itself is a safeguard, as the CMA can block the merger, allow it with conditions, such as guaranteeing rivals fair access to Arm's designs, or impose fines if the firm exploits consumers.

Overall, the main concerns are higher prices and reduced choice for the many firms that rely on Arm's designs. How serious these are depends on whether the merged firm restricts rivals' access and on the strength of global competition, which is why the CMA is investigating in depth.

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(e) With reference to Extract D, discuss possible methods of government intervention to reduce electronic waste.

(15)

Electronic waste creates negative externalities: external costs imposed on third parties, such as hazardous substances contaminating soil and water pollution, which are not paid for by producers or consumers. Extract D shows the scale of the problem: in 2018, 1.2 million tonnes of electrical devices were sold in the UK but only 500 000 tonnes reached recycling centres, so about 700 000 tonnes (58%) were not recycled. The UK produces 24.9 kg a person a year, nearly 10 kg more than the EU average.

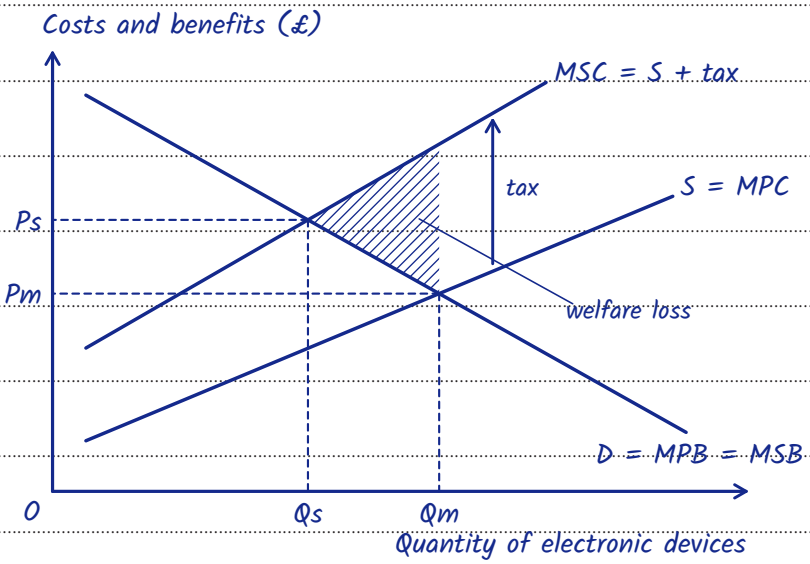
As shown in my diagram, the free market produces where MPC = MPB at Qm, but because of the external costs the marginal social cost (MSC) is above MPC. The socially optimum output is Qs, where MSC = MSB, so there is overproduction, a misallocation of resources and a welfare loss (the hatched triangle). Government intervention aims to correct this market failure.

One method is an indirect tax, either on manufacturers of electronic devices or on household waste, for example by weighing household rubbish as some countries do. A tax equal to the external cost shifts supply from MPC to MSC, internalising the externality. Price rises from Pm to Ps and quantity falls to the socially optimum level Qs, removing the welfare loss, and the tax revenue could fund recycling centres.

A second method is subsidies, such as subsidising recycling initiatives or firms that extend the longevity of electronic items or increase their recyclable content. This lowers the cost of recycling and encourages consumers to recycle, especially small appliances, of which barely one in five reach a recycling centre.

Thirdly, regulation could be used, for example requiring producers to take back old devices, setting minimum recyclable content and product life, or fining households that put electronics in general bins. Fourthly, provision of information and environmental education, such as labels on packaging, could correct the information

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gap, as many consumers do not realise that toasters, hairdryers and headphones should not go in household bins.

However, the effectiveness of these policies is uncertain. It is very difficult to measure and put a monetary value on the external costs of electronic waste, so the government may set the tax at the wrong level, leading to government failure.

Demand for electronic devices is likely to be price inelastic, so a tax may do little to reduce consumption and changing behaviour is difficult. A tax on household waste may have unintended consequences, such as an increase in illegal dumping of small electronic products, which would make the problem worse.

Subsidies have an opportunity cost and excessive administrative costs of targeting them, while regulation and fines are costly to enforce. Consumers may simply ignore electronic waste labelling, so information may have limited impact. On the other hand, some initiatives have clearly worked: the recycling rate for big appliances, such as fridges and cookers, is already about 80%, which suggests that targeting small appliances could be effective.

Timescale also matters: improving the design of new products will take longer than recycling current items, and technological advances may reduce waste in the long run through re-use and longer product life.

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In conclusion, the most effective approach is a combination of policies: subsidised and convenient recycling for small appliances, supported by regulation of producers and education, is likely to be better than a tax alone, because demand is inelastic and a tax risks illegal dumping. The success depends on enforcement and how far consumers change their behaviour.

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(Total for Question 6 = 50 marks)

TOTAL FOR SECTION B = 50 MARKS

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SECTION C

Answer ONE question from this section.

Write your answer in the space provided.

You are advised to spend 30 minutes on this section.

EITHER

7 A small hotel in Scarborough has seen its energy bills increase from £2 000 to £8 000 per month. Small businesses do not have the energy management teams of larger companies to negotiate better deals.

(Source adapted from: https://www.ft.com/content/d07797e7-2eb7-4240-b15d-692b39510def)

Evaluate the microeconomic effects of rising energy bills on the hotel industry or an industry of your choice.

(Total for Question 7 = 25 marks)

OR

8 Bytedance, which owns TikTok, has launched its own fragrance 'Emotif'.

The Beijing-based social media giant has already entered the food and drink markets.

(Source adapted from: https://www.businessoffashion.com/news/china/tiktoks-parent-company-enters-chinas-perfume-market/)

Evaluate the level of contestability in the fragrance industry or another industry of your choice.

(Total for Question 8 = 25 marks)

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Indicate which question you are answering by marking a cross in the box ☒. If you change your mind, put a line through the box ☒ and then indicate your new question with a cross ☒.

Chosen question number: **Question 7** ☒ **Question 8** ☒

Write your answer here:

Question 7

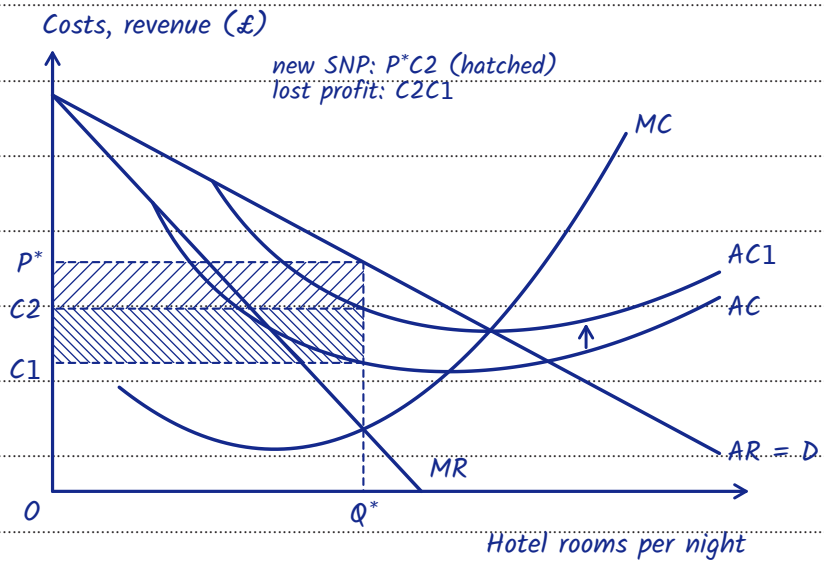
Rising energy bills are an increase in the costs of production. The hotel industry is energy intensive, as hotels must heat rooms, provide hot water, run kitchens, lighting and laundry 24 hours a day. The small hotel in Scarborough has seen its energy bills rise from £2 000 to £8 000 per month, an increase of 300%, so this is a very large cost shock.

Energy bills that are mostly fixed costs, as they do not vary much with the number of guests, shift the AC curve upwards from AC to AC1, as shown in my diagram, while MC is unchanged. The profit-maximising hotel still produces where MC = MR, at Q^* and P^*, but supernormal profit falls from P^*C1 to the smaller area P^*C2, the cross-hatched area showing lost profit. If part of the bill is a variable cost, both AC and MC shift up, so the profit-maximising output falls and price rises. In a competitive market, the industry supply curve shifts left, leading to higher prices for hotel rooms and lower output.

If price falls below AC, hotels make a loss. In the short run they can continue as long as price covers average variable cost, but if they cannot cover AC in the long run they will reach the shut down point and leave the industry. Small hotels are most at risk because they do not have energy management teams to negotiate better deals.

Hotels may respond by cutting other costs, such as wages, making redundancies or reducing investment in refurbishment, which could lower the quality of service for guests. There are wider impacts on employees and on suppliers such as local food

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and laundry businesses. As small hotels exit, the level of competition and contestability falls, leaving larger chains with greater market power, so prices may rise further. Hotels may also change their business objective, for example to sales maximisation to keep rooms full, or survival.

However, the size of the effect depends on several factors. Firstly, the energy bill as a proportion of total costs: for a large hotel where labour is the main cost, the impact is smaller than for a small hotel. Secondly, the price elasticity of demand: if demand for hotel rooms is price inelastic, for example during the peak summer season in Scarborough, hotels can pass the higher costs on to guests through higher prices, protecting revenue; if demand is elastic, raising prices would reduce total revenue. Thirdly, market structure matters. Large chains such as Premier Inn have monopsony power and can negotiate long-term fixed energy contracts, so they are less affected and may even gain market share. Fourthly, energy prices are very volatile, so the increase may be temporary; if energy prices fall in the long run, profits will recover and fewer hotels will close. The government may also intervene with support schemes for businesses with higher bills.

Finally, higher energy costs create an incentive to invest in energy saving devices such as insulation, LED lighting and solar panels, and to remind guests to turn the

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heating down and lights off, which reduces energy use and costs in the long run.

Any increase in demand, such as more people taking UK holidays, could offset higher costs.

In conclusion, rising energy bills reduce profits and threaten the survival of small, energy-intensive hotels, leading to higher prices, job losses and less competition. However, the magnitude depends on the share of energy in total costs, the price elasticity of demand and how long energy prices stay high. Larger firms are likely to cope, so the main effect is a shift towards a more concentrated industry.

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Question 8

A contestable market is one with freedom of entry and exit, where the threat of new entrants forces incumbent firms to behave competitively, setting prices close to average cost. It is not the number of firms that matters but the ease with which new firms can enter, and the absence of sunk costs that make exit costly.

There is evidence that the fragrance industry is contestable. Bytedance, which owns TikTok, has entered the market with its own fragrance, Emotif, after already entering food and drink markets. This shows that firms from other industries can enter.

Barriers to entry have been lowered by technological advances: fragrances can be produced on a small scale by contract manufacturers, so entrants do not need their own factories, and products can be sold online and promoted on social media, avoiding the high cost of shops and TV advertising. Small firms can secure niche markets, such as vegan or celebrity fragrances. Barriers to exit are also low, as firms can rent premises, outsource production and use temporary labour contracts, so there are few sunk costs and hit-and-run competition is possible. Consumers have easily available information online and are prepared to switch, making demand more price elastic.

In a contestable market, incumbents may use limit pricing, setting price low enough to deter entry, so they earn only normal profits in the long run, which benefits consumers through lower prices and more innovation.

However, the fragrance industry may not be very contestable. It is highly concentrated, dominated by a few large firms such as L'Oréal, Estée Lauder and Coty, which own many well-known brands. Strong brand names imply high sunk costs: a new fragrance needs heavy advertising, celebrity endorsements and expensive packaging to reach a mass market, and this spending cannot be recovered if the firm leaves. Large incumbents also benefit from economies of scale in production and

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marketing, so new entrants face higher average costs. Access to department stores and duty-free shops may be controlled by incumbents, and they may use limit pricing or collusive practices to deter entry.

Bytedance's entry may therefore be the exception rather than evidence of contestability: it is a well-established social media giant with huge finance and its own platform, TikTok, giving it free access to millions of consumers. Entry is easier for such firms than for small start-ups.

The degree of contestability also varies between market segments. The mass market and online niche segments are fairly contestable, while the luxury segment, where brand image is crucial, has high barriers to entry. Regulators may also intervene to keep the market open.

Over time, contestability may also change. The rapid growth of social media marketing and influencers means that the advantage of large advertising budgets is falling, so barriers to entry are likely to keep falling in the long run. However, if a new entrant such as Emotif succeeds, incumbents may respond aggressively with price cuts or exclusive deals with retailers, and if Bytedance itself gains market power the market could become less contestable.

In conclusion, the fragrance industry is partly contestable: technology and social media have lowered barriers to entry, as Bytedance shows, but strong brands, high advertising sunk costs and economies of scale mean the luxury and mainstream markets remain dominated by a few firms. It depends on the segment, with contestability greatest online and in niche markets.

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