Please check the examination details below before entering your candidate information

Candidate surname	Other names
StemUp Model Solution	

Pearson Edexcel Level 3 GCE

Centre Number	Candidate Number

Monday 20 May 2019

Morning (Time: 2 hours)	Paper Reference **9EC0/01**

Economics A

Advanced
Paper 1: Markets and Business Behaviour

You do not need any other materials.	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.*

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.*
- 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.

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 Between 2016 and 2017 the average price of new build houses in the UK rose by an estimated 5.4%.

Year	Quantity of UK new house builds
2016	134 612
2017	162 880

(Source: http://www.telegraph.co.uk/business/2017/05/25/number-new-homes-built-hits-highest-level-since-financial-crisis/)

(a) With reference to the data provided, calculate the price elasticity of supply for new house builds between 2016 and 2017. You are advised to show your workings.

(2)

% change in quantity supplied = (162 880 – 134 612) ÷ 134 612 × 100

= 28 268 ÷ 134 612 × 100 = 21.0%

PES = % change in quantity supplied ÷ % change in price = 21.0 ÷ 5.4

PES = 3.9 (supply is price elastic)

(b) A 2.5% increase in new build house prices in one region of the UK causes a 10% increase in the number of houses built. Ceteris paribus, this suggests that supply of new house builds is:

(1)

- ☐ **A** perfectly price elastic
- ☐ **B** perfectly price inelastic
- ☒ **C** relatively price elastic
- ☐ **D** relatively price inelastic

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(c) Explain **one** factor that is likely to determine the price elasticity of supply of new house builds.

(2)

One factor is the availability of land and planning permission. Land for building is scarce and planning regulations take a long time to approve, and builders such as bricklayers and electricians are limited, so firms cannot quickly increase the number of houses built when prices rise. This makes the supply of new house builds price inelastic, especially in the short run.

(Total for Question 1 = 5 marks)

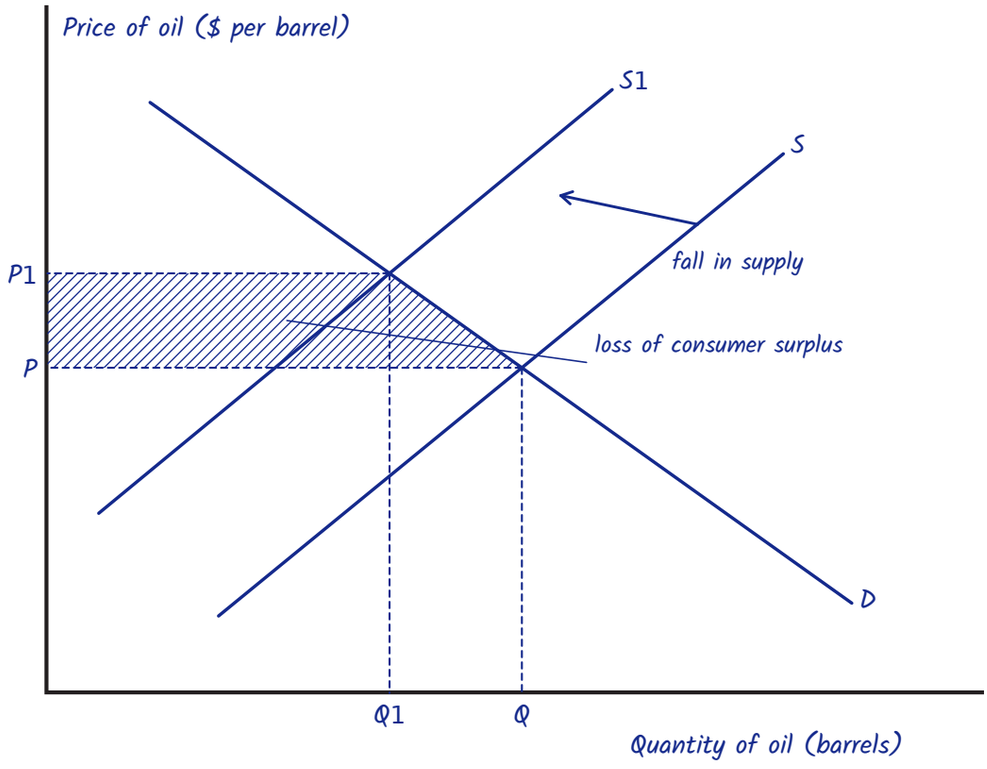
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2 In August 2017 Hurricane Harvey caused the closure of nearly a quarter of the oil production capacity in the United States.

(a) Draw a supply and demand diagram to show the likely microeconomic effects of the hurricane on the US oil market.

(4)



Nearly a quarter of US oil production capacity closed, so supply falls: S shifts left to S1. At the original price P there is excess demand, so the price rises from P to P1 and the equilibrium quantity falls from Q to Q1. Consumer surplus falls (shaded area) and, as demand for oil is price inelastic, total revenue of producers still operating rises.

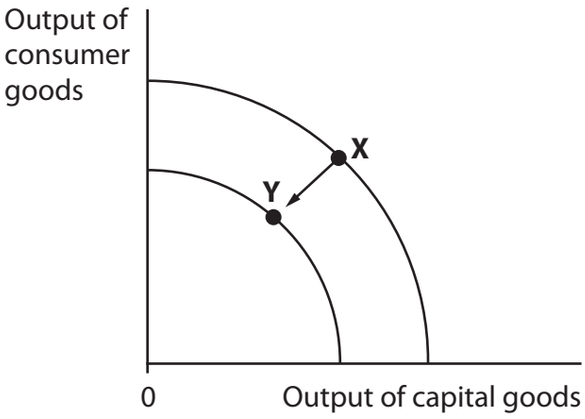
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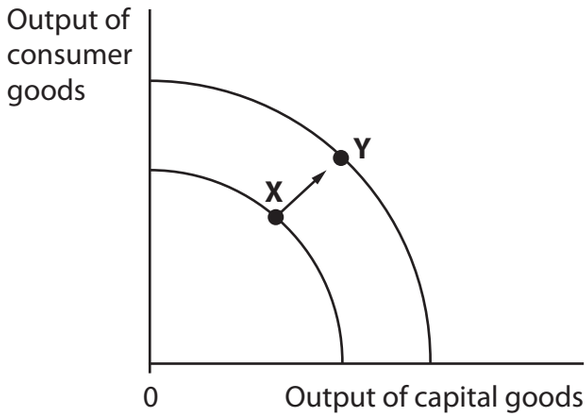
(b) The diagrams show movements from position X to Y on production possibility frontiers. In which **one** of the diagrams does the movement from X to Y illustrate the most likely impact on the US economy of a natural disaster such as Hurricane Harvey?

(1)

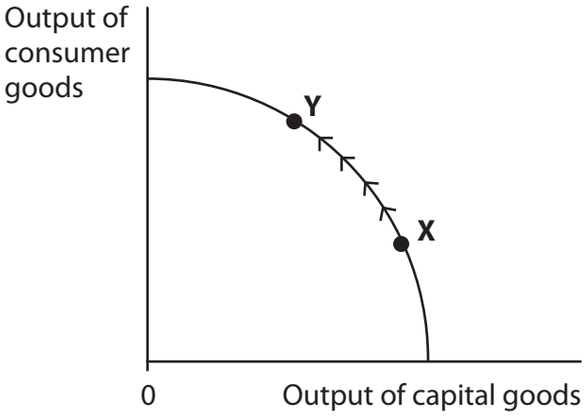
☒ **A**



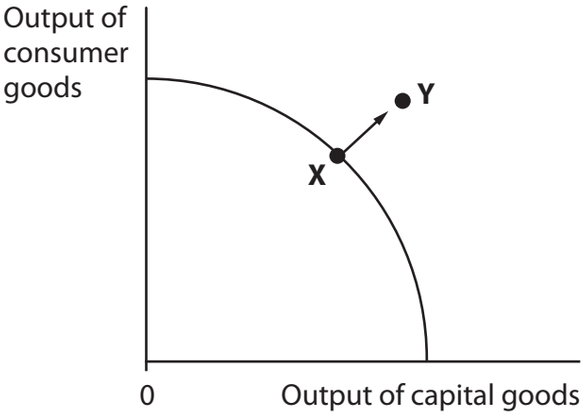
☒ **B**



☒ **C**



☒ **D**



(Total for Question 2 = 5 marks)

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3 According to the Royal Mail, more hair and beauty salons opened on UK high streets last year than any other type of independent business, with a net increase of 10%, representing 626 new salons.

(Source: adapted from https://www.theguardian.com/small-business-network/2016/nov/18/beauty-boom-or-bust-uk-too-many-salons)

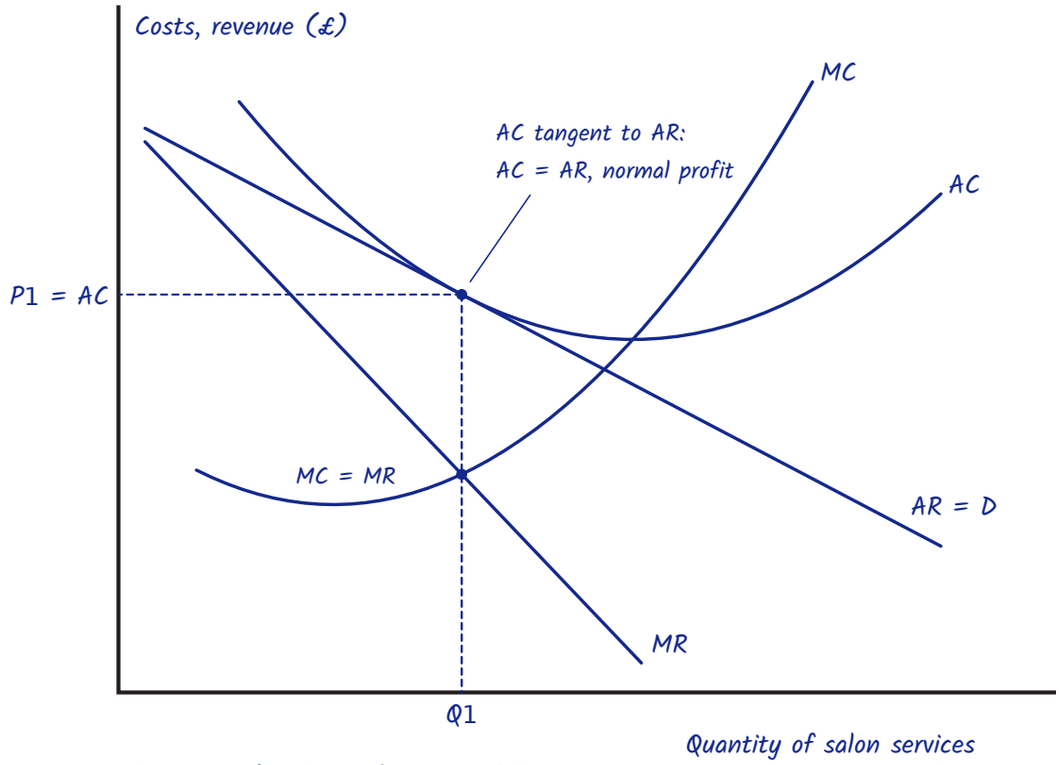
(a) The UK hair and beauty industry is an example of monopolistic competition because:

(1)

- ☒ **A** firms spend nothing on advertising and research
- ☒ **B** the industry is dominated by a few large firms
- ☒ **C** the products are homogenous
- ☒ **D** there are low barriers to entry and exit

(b) Draw a cost and revenue diagram to show the **long-run** equilibrium of a firm in monopolistic competition.

(4)



Long run: new salons enter (low barriers) until AR falls to be tangent to AC, so P1 = AC and only normal profit is made.

(Total for Question 3 = 5 marks)

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4 In 2016, the insurance group Esure undertook a demerger with its GoCompare price comparison website.

(a) The most likely reason for this demerger was to:

(1)

- ☒ **A** benefit from external economies of scale
- ☒ **B** benefit from internal economies of scale
- ☒ **C** focus more on its core business
- ☒ **D** increase its market share

Following the demerger, GoCompare announced in 2017 a profit of £17.5 million, up 21.5% on 2016. Total revenue in 2017 was £75.8 million, up 4.1% on 2016.

(Source: adapted from https://www.insuranceage.co.uk/insurer/3107496/profits-up-at-go-compare)

(b) Calculate, using the information provided, the total costs of GoCompare in **2016**.

(4)

Profit = total revenue − total costs, so total costs = total revenue − profit

Profit in 2016 = £17.5 million ÷ 1.215 = £14.4 million

Total revenue in 2016 = £75.8 million ÷ 1.041 = £72.8 million

Total costs in 2016 = £72.8 million − £14.4 million

Total costs in 2016 = £58.4 million

(Total for Question 4 = 5 marks)

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5 Free market economics is being challenged. The arguments for and against are being increasingly discussed within many countries.

(a) Explain how resources are allocated in a free market economy.

(2)

Resources are allocated by the price mechanism, the market forces of supply and demand (the 'invisible hand'), by privately owned firms with limited government intervention (laissez-faire).

Prices act as a signal: if demand increases, the price rises to ration the good and gives firms an incentive to move resources into producing it, so consumer sovereignty decides what is produced.

(b) Which **one** of the following statements is true?

(1)

- ☒ **A** Friedrich Hayek believed that the government should subsidise inefficient firms
- ☒ **B** Friedrich Hayek was a key advocate of command economies as a way of allocating resources
- ☒ **C** Karl Marx advocated allocating resources via the free market
- ☒ **D** Karl Marx criticised the private ownership of factors of production

Adam Smith described the benefits of specialisation and the division of labour.

(c) Explain **one** advantage to a firm of using division of labour when organising its production process.

(2)

Each worker specialises in one task, so the firm only needs to train workers in one specific role and they become faster and more skilled. Labour productivity rises, giving more output from the same workforce and so lower average costs.

(Total for Question 5 = 5 marks)

TOTAL FOR SECTION A = 25 MARKS

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QUESTION 6 BEGINS ON THE NEXT PAGE.

SECTION B

Read Figures 1 and 2 and extracts (A to C) before answering Question 6.

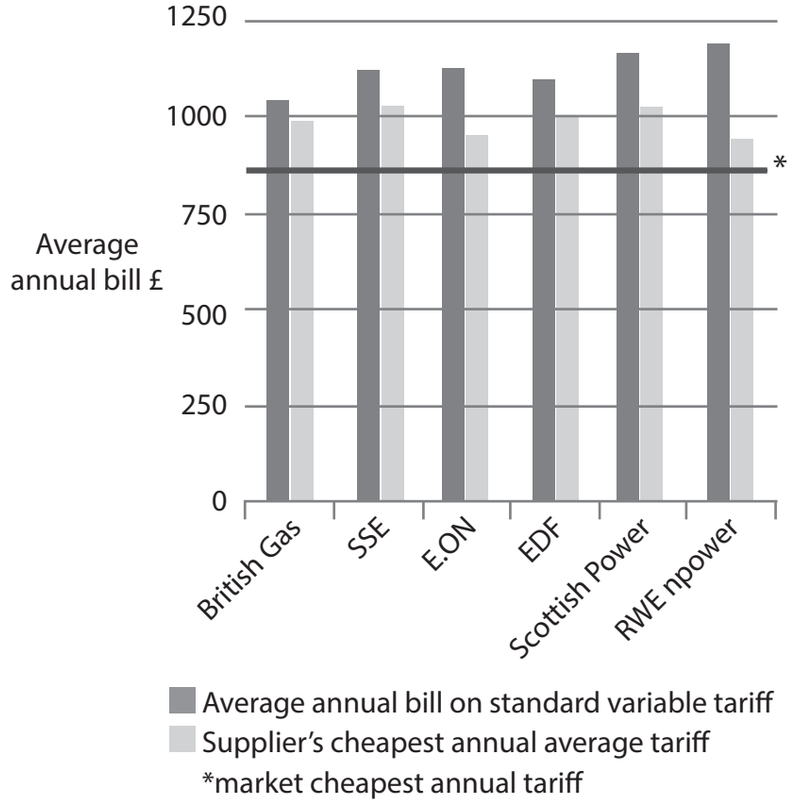
Write your answers in the spaces provided.

You are advised to spend 1 hour on this section.

Question 6

Energy and telecommunication markets in the UK

Figure 1: Average annual household bill from the Big Six UK energy suppliers, 2017



(Source: https://www.lovemoney.com/news/67298/standard-variable-tariff-compared-cheapest-deal-provider-savings)

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Extract A

Energy price cap to fix 'broken' market in UK

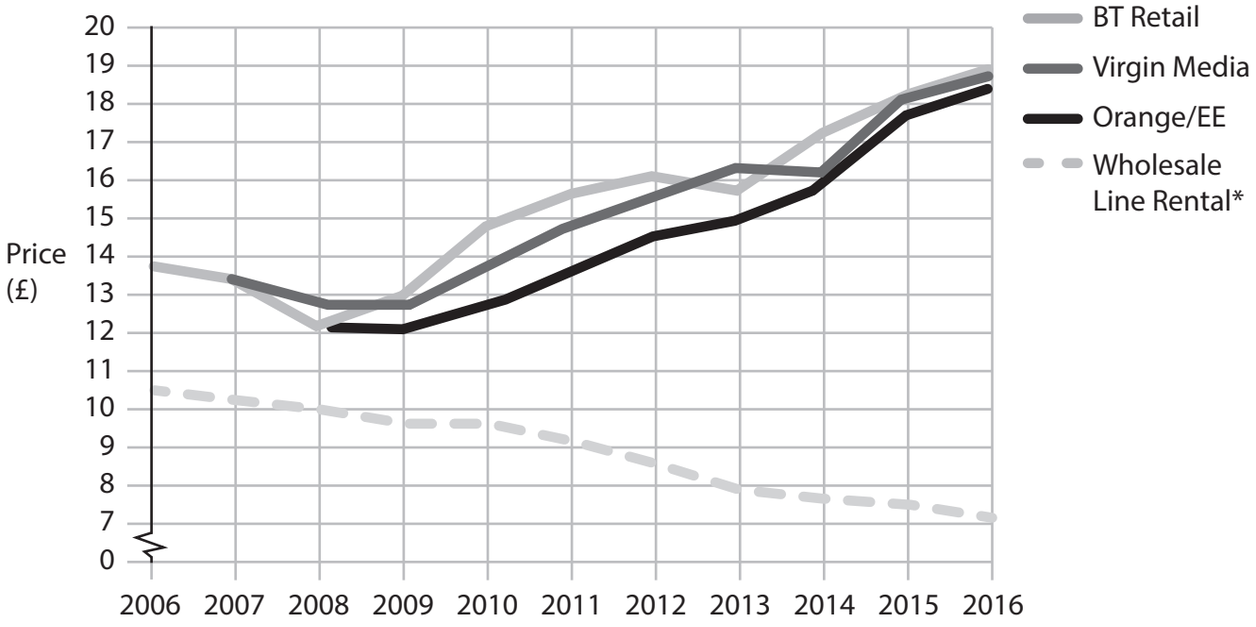
The Prime Minister recently said that the regulator Ofgem (Office of Gas and Electricity Markets) should limit electricity and gas suppliers' most expensive tariffs.

Under the planned new legislation, the energy bills of 11 million households will be capped for as long as five years. The government claimed this cap could save households up to £100 a year. This legislation would force Ofgem to change the licence conditions for energy suppliers so that they are required to cap electricity and gas prices. The measure will apply to anyone on a standard variable tariff, the expensive plans that customers are moved to when cheaper, fixed-price deals end. Ofgem will need to consult energy companies on how the cap is calculated, the government said. The Prime Minister repeated her claim that she had to act because the 'market is broken', a charge the big energy companies reject. "I have been clear that our broken energy market has to change – it has to offer fairer prices for millions of loyal customers who have been paying hundreds of pounds too much," she said.

However, Michael Lewis, chief executive of E.ON said "the government must guard against any unintended consequences that undermine customer service and push up prices as a whole. A price cap will not be good for customers. It will reduce competition and innovation". Smaller suppliers such as First Utility said the Big Six had only themselves to blame for the cap, because they had kept millions of people on standard variable tariffs.

(Source: adapted from 'UK puts energy efficiency at heart of climate change strategy', Adam Vaughan, Copyright Guardian News & Media Ltd 2017 https://www.theguardian.com/money/2017/oct/12/may-energy-price-cap-ofgem-electricity-gas-tariffs)

Figure 2: The monthly rental cost of a telephone landline



*Wholesale line rental – the rental price BT Openreach charges telephone service providers

(Source: https://www.ofcom.org.uk/about-ofcom/latest/features-and-news/landline-prices-review)

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Extract B

BT profit rises

BT Group, which includes BT Openreach and BT Retail, reported a rise in profit as revenue increased following the integration of the consumer mobile business, EE. BT finalised the takeover of EE in August 2016, and the integration has resulted in BT controlling 35% of the mobile consumer market. The profit of the UK-based telecommunication group in its second quarter 2017 rose to £566 million.

BT Group chief executive Gavin Patterson said: "We will operate a multi-brand strategy with UK customers being able to choose a mix of BT, EE or Plusnet services, depending on which suits them best. The acquisition enables us to offer great value bundles of services and customers are set to be the winners as we compete for their business".

(Source: adapted from www.marketwatch.com (Oct 27 – 2016) and http://home.bt.com/news/bt-life/bt-to-retain-ee-brand-as-acquisition-confirmed-11364037422234)

Extract C

BT to slash landline charges for 1 million customers

Rental charges for landline-only customers – households with a telephone-only contract but no BT broadband – will fall from £18.99 to £11.99 per month after the regulator attacked existing deals as 'poor value for money'. This rental reduction will save a million landline-only customers £84 a year.

The regulator Ofcom (Office of Communications) said it stepped in because these bills for landline-only customers – nearly two-thirds of whom are over 65 – have "soared" in recent years. This is despite BT and other landline providers benefiting from significant cuts in the wholesale line rental cost of providing the service by BT Openreach. Many landline-only customers are elderly, and have been with BT for decades. Ofcom has focused on BT because it accounts for two-thirds of the UK's 1.5m landline-only customers.

A spokesperson for Ofcom said "This position [of dominance] has allowed BT to increase prices without much risk of losing customers, and other providers have followed BT's pricing lead. We expect BT's price cut to mean other providers will follow suit". Ofcom said that over three-quarters of BT's landline-only customers have never switched provider, which has left them a prime target for price rises. The regulator said that all major landline providers have increased their line rental charges by between 23% and 47% in recent years, while their own costs for providing the service have fallen about 27%. Ofcom said it is also looking at measures to help people shop around for better deals with more confidence.

(Source: adapted from 'BT to slash landline charges for 1m customers', Mark Sweney, Copyright Guardian News & Media Ltd 2017 https://www.theguardian.com/business/2017/oct/26/bt-to-slash-landline-charges-for-1m-customers)

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6 (a) With reference to Extract A, explain the difference between a positive statement and a normative statement.

(5)

(b) With reference to Extract B, examine the likely benefits to consumers of the integration between BT and EE.

(8)

(c) With reference to Extract C, assess possible reasons why many 'landline-only' customers do not switch to a cheaper telephone provider.

(10)

(d) Discuss **one** likely reason for the rise in BT's profit (Figure 2, Extracts B and C). Use a cost and revenue diagram to support your answer.

(12)

(e) Discuss methods of government intervention to protect consumers within the utilities markets, such as energy and telecommunications.

(15)

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(a) With reference to Extract A, explain the difference between a positive statement and a normative statement.

(5)

A positive statement is an objective statement of fact that can be tested and proved true or false against evidence, using the scientific method. A normative statement is subjective; it contains a value judgement or opinion about what ought to be, often reflecting a political viewpoint, so it cannot be tested.

A positive statement in Extract A is that 'the energy bills of 11 million households will be capped for as long as five years', as this can be checked against the facts once the law is passed. The claim that the cap 'could save households up to £100 a year' is also testable.

A normative statement is that Ofgem 'should limit electricity and gas suppliers' most expensive tariffs', or the Prime Minister's view that the 'market is broken' and must offer 'fairer prices'. Words such as 'should' and 'fairer' show the value judgement of the Prime Minister and her party. E.ON's chief executive takes the opposite view, that 'a price cap will not be good for customers', which is also a normative statement, so the two sides disagree because of opinions rather than testable facts.

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(b) With reference to Extract B, examine the likely benefits to consumers of the integration between BT and EE.

(8)

BT's takeover of EE in August 2016 is horizontal integration in the telecommunications market, giving BT control of 35% of the mobile consumer market alongside its landline and broadband services.

One likely benefit is lower prices. The larger firm can gain internal economies of scale, such as purchasing economies when buying handsets and network equipment and technical economies from sharing one network. If these lower average costs are passed on, consumers pay lower prices, can buy more with their income and gain consumer surplus.

A second benefit is better value bundles and choice. Extract B says BT will run a multi-brand strategy, letting customers choose a mix of BT, EE or Plusnet services, and offer 'great value bundles of services'. Buying landline, broadband and mobile together on one contract is cheaper overall than buying each separately, and is more convenient. Higher profits, which rose to £566 million, could also fund innovation such as faster 4G and fibre networks, improving quality.

However, these benefits depend on whether cost savings are actually passed on to consumers. With 35% of the mobile market BT gains market power, so in the long run it could raise prices, restrict choice and deter new competitors, or suffer x-inefficiency and diseconomies of scale, giving worse customer service. The outcome also depends on the reaction of rivals such as Vodafone and O2, which still 'compete for their business', and on regulation by Ofcom and the CMA. On balance consumers are likely to benefit in the short run, but only while competition and regulation remain strong.

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(c) With reference to Extract C, assess possible reasons why many 'landline-only' customers do not switch to a cheaper telephone provider.

(10)

Many landline-only customers do not switch even though Extract C shows BT's rental was £18.99 per month and the cut to £11.99 alone saves them £84 a year. This suggests they are not acting as rational utility maximisers.

The first reason is information gaps. Nearly two-thirds of landline-only customers are over 65, and many lack the knowledge or internet access to shop around online and use price comparison websites, so they lack market information on how their bill compares with other providers. Payment by direct debit means many households are unaware of automatic price rises made by BT, and bundles combine different services, so prices are hard to compare. Without this information consumers cannot make a rational choice and stay with an expensive provider.

The second reason is irrational behaviour, especially habitual behaviour and status quo bias. Many customers 'have been with BT for decades' and over three-quarters of BT's landline-only customers have never switched. Brand loyalty and inertia make their demand price inelastic, which Ofcom says has 'allowed BT to increase prices without much risk of losing customers'. Consumers may also have computation problems in working out the best deal, may not have the time to look for better deals, and may want to avoid the disruption of changing provider. Tie-in contracts, automatic renewals and information overload add to this.

However, the significance of these reasons can be questioned. Not switching may be rational: other providers 'followed BT's pricing lead', and Figure 2 shows Virgin Media and Orange/EE charging almost the same as BT, around £18 to £19 in 2016, so the saving from switching between providers is small compared with the time and hassle involved. Some customers may also value non-price factors such as line quality and BT's customer service. Information gaps are probably the most significant reason for elderly customers, as habit and lack of

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knowledge reinforce each other, rather than a lack of choice.

In the long run information gaps may narrow and irrational behaviour may reduce. Ofcom is 'looking at measures to help people shop around for better deals with more confidence', clearer price plan information would make comparison easier, and younger, more internet-confident customers are more likely to switch. Overall, a combination of information gaps and habitual behaviour explains most of the failure to switch, but the regulator's action may matter more than switching in protecting these consumers.

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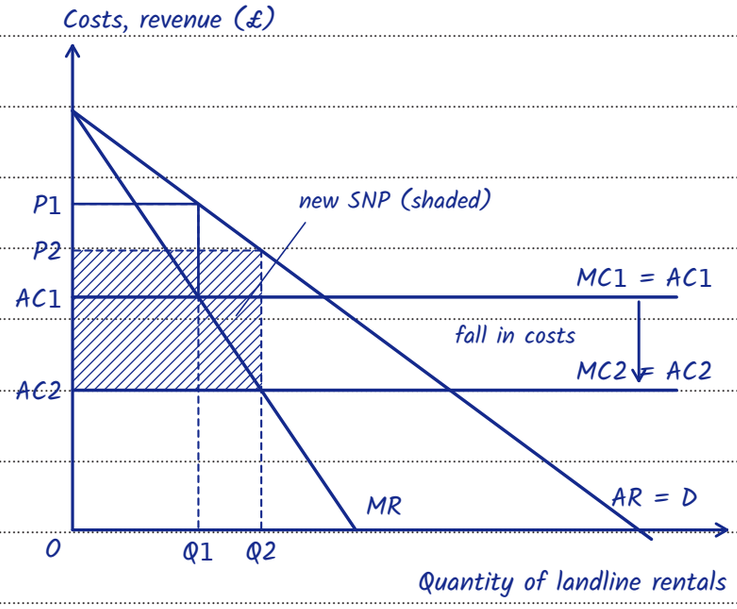
(d) Discuss **one** likely reason for the rise in BT's profit (Figure 2, Extracts B and C). Use a cost and revenue diagram to support your answer.

(12)

Profit is total revenue minus total costs. One likely reason for the rise in BT's profit, to £566 million in the second quarter of 2017, is a fall in its costs of providing the landline service.

Figure 2 shows that the wholesale line rental charged by BT Openreach fell from about £10.50 a month in 2006 to about £7 in 2016, and Extract C says providers' own costs of providing the service fell by about 27%. This lowers both marginal cost and average cost. My diagram shows BT as a firm with monopoly power profit maximising where MC = MR.

When costs fall from MC1 = AC1 to MC2 = AC2, the profit maximising output rises from Q1 to Q2. Supernormal profit is (AR − AC) × Q, so it rises from the original rectangle between P1 and AC1 to the larger shaded area between P2 and AC2. Even if a profit maximiser passes on some of the cost fall as a lower price, the profit margin per unit and total supernormal profit both increase.



In reality BT did not pass on these savings. Because BT has two-thirds of the 1.5 million landline-only customers, many of them elderly and loyal, demand is price inelastic, so it raised line rental from about £14 to £18.99 while costs fell. Line rental charges rose by

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between 23% and 47% as costs fell about 27%, so the gap between AR and AC widened sharply, raising profit even more than my diagram shows.

However, it is not possible to say for certain that lower costs were the main reason. Extract B links the profit rise to higher revenue after the integration of EE, which gave BT 35% of the mobile market, so both falling costs and rising revenue are working together. The data also only covers one quarter and BT Group includes Openreach, whose wholesale revenue falls as line rental falls. Given the magnitude of the 27% fall in costs while prices rose, lower costs are likely to have made a significant contribution.

In the future these profits are likely to fall. Ofcom has forced BT to cut landline-only rental to £11.99, costing around £84 million a year in revenue from one million customers, and other providers are expected to follow, so competition will increase. Therefore the rise in profit from lower costs may be only short run.

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(e) Discuss methods of government intervention to protect consumers within the utilities markets, such as energy and telecommunications.

(15)

Utilities such as energy and telecommunications are natural monopolies or oligopolies with high barriers to entry and price inelastic demand, so firms can exploit consumers with high prices, as with the Big Six energy suppliers and BT. The government can intervene in several ways to protect consumers.

The first method is price regulation. A price cap, such as RPI – X, limits how much firms can raise prices and acts as a surrogate for competition. Extract A shows the planned cap on standard variable tariffs will cover 11 million households for up to five years, saving up to £100 a year, and Ofcom made BT cut landline-only rental from £18.99 to £11.99. Lower prices move output closer to the allocatively efficient level and transfer surplus from producers back to consumers, while the X factor gives firms an incentive to cut costs to keep profit.

Secondly, regulators can set performance targets and quality standards, such as minimum standards for customer service, reliability of supply and line repair times, with fines for failure. This stops firms cutting quality to raise profits under a price cap. Profit regulation, such as a rate of return cap, can also limit excessive supernormal profits.

Thirdly, the government can provide information to enable switching. Figure 1 shows that customers on standard variable tariffs pay over £1 000 a year when the market cheapest tariff is about £850. Measures such as smart meters, clear tariff information and Ofcom's plans to help people 'shop around' reduce information gaps, so consumers switch and firms are forced to compete on price.

Fourthly, policies to promote competition and contestability, such as start-up grants or lower barriers for small suppliers such as First Utility, and separation of BT Openreach to give rivals equal access to the network, increase choice. The Competition and Markets Authority can investigate abuse of a dominant position, fine anti-competitive agreements and block mergers that reduce competition. In the extreme, the government could renationalise a utility.

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However, each method has weaknesses. With price caps there is asymmetric information: the regulator knows less about firms' true costs than the firms, so the cap may be set too high and not protect consumers, or too low, so firms cut investment and customer service. As E.ON's chief executive argued, a cap may 'reduce competition and innovation', and firms may treat the cap as a target price, so all prices rise to it. There is also regulatory capture, where the regulator acts in the interests of the firms, and regulatory lag, where rules take years to change.

Information policies are limited by irrational consumer behaviour: over three-quarters of BT's landline-only customers have never switched, so better information alone may not change habits. Competition policy works slowly, as it takes a long time for new entrants to gain market share against firms with large economies of scale, and renationalisation is costly, has an opportunity cost and may lead to x-inefficiency without the profit motive. These are examples of possible government failure, where intervention causes unintended consequences such as price increases elsewhere or deteriorating service.

Different industries may also need different approaches. In telecommunications, where the Openreach network is shared and many rivals exist, competition policy may be enough in the long run, while energy, with large switching problems and vulnerable customers, may need a price cap in the short run.

In conclusion, no single method fully protects consumers. A combination is most effective: price caps protect loyal and vulnerable customers in the short run, while information and competition policies tackle the cause of high prices in the long run. Its success depends on the regulator having good information on costs and avoiding regulatory capture.

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(Total for Question 6 = 50 marks)

TOTAL FOR SECTION B = 50 MARKS

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SECTION C BEGINS ON THE NEXT PAGE.

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 In July 2017 it was announced that only a third of the BBC's 96 top earning presenters were women and that its seven highest-paid presenters were all men.

According to the High Pay Centre, in 2018, UK chief executives can earn 120 times more than the average full-time worker earning £28 758.

With reference to an industry of your choice, evaluate why wage differences exist within the UK labour market.

(Total for Question 7 = 25 marks)

OR

8 In October 2017 Scania, the Volkswagen-owned truck maker, was fined €880 million (£771 million) by the European Commission for colluding with five other truck manufacturers over a 14-year period. The firms had agreed to coordinate prices after experiencing additional costs of meeting emission regulations.

With reference to an industry of your choice, evaluate why some firms engage in collusive behaviour.

(Total for Question 8 = 25 marks)

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** ☒

Wage differentials are differences in wage rates between workers in different occupations, industries, regions, ages or genders. Wages are determined by the demand for and supply of labour. Labour is a derived demand: it is demanded for the output it produces, so demand depends on the marginal revenue product (MRP) of workers. I will use the UK broadcasting industry, including the BBC, as my example.

Firstly, wage differences exist because of differences in demand for labour. Top presenters have a very high MRP: well known faces attract large audiences, which raises advertising revenue for commercial broadcasters such as ITV and Sky, and justifies the licence fee for

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the BBC. There are few substitutes for a star presenter, so demand for their labour is price inelastic. Production assistants and runners add less to revenue and can easily be replaced, so their MRP and demand are lower.

Secondly, wage differences reflect the supply of labour. Very few people have the talent, experience and public recognition of a top presenter, so supply is scarce and very inelastic. As my first diagram shows, a high demand and inelastic supply give a high wage W1 for a small number of workers Q1. Much of this wage is economic rent. In contrast, many graduates want to work in the media, so the supply of production assistants is large and elastic, and with lower demand the wage W2 is much lower. Many accept low pay for the prestige and experience, a non-monetary benefit.

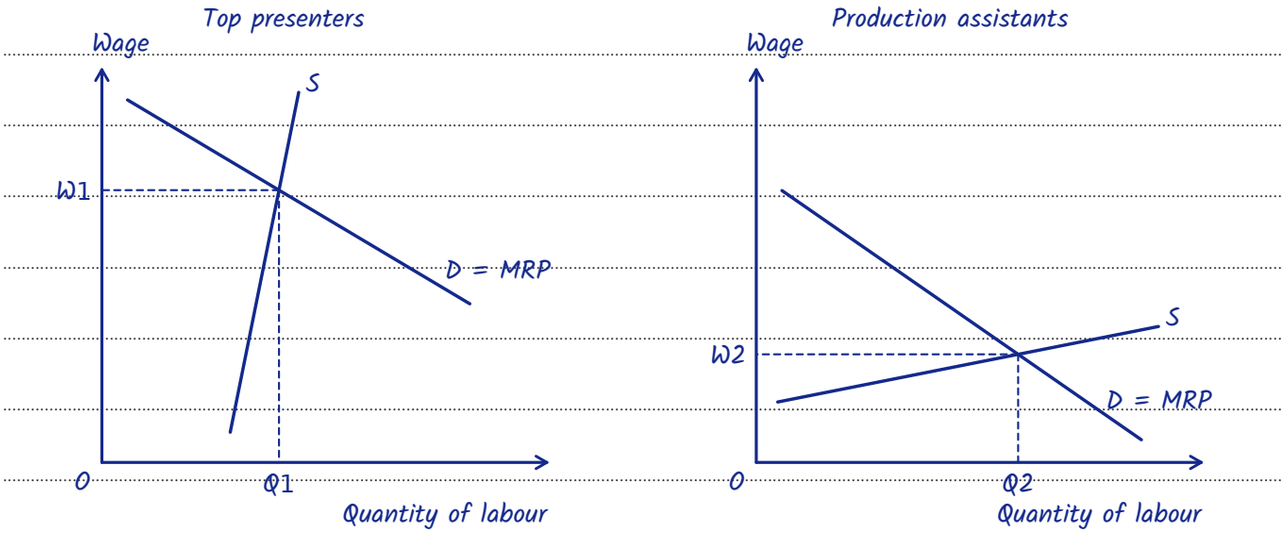
Thirdly, there are gender wage differences. In July 2017 only a third of the BBC's 96 top earners were women, and the seven highest paid presenters were all men. This could reflect discrimination, where employer prejudice lowers the demand for female labour below its MRP. It may also reflect gaps in employment for carers: women are more likely to take career breaks for childcare, so they have less experience when top roles are filled, and occupational segregation, as sports presenting, among the highest paid roles, is dominated by men. A lack of pay transparency meant women could not compare their pay with male colleagues.

Fourthly, imperfections in the labour market matter. In some roles, such as regional news journalists, the BBC is a monopsony employer and can pay below MRP. Trade unions such as BECTU and the NUJ raise wages for technical staff through collective bargaining. Public sector pay is also lower at the top: BBC executives earn far less than chief executives in the private sector, where pay can be 120 times the average full-time worker earning £28 758, about £3.45 million a year.

However, the significance of these reasons varies. The gap between star presenters and runners largely reflects labour market forces working efficiently: their different MRP and the scarcity of talent. Yet the gap between men and women doing the same job, for example

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presenters of the same programme, cannot be explained by MRP and suggests imperfections and discrimination. In practice it is very difficult to measure the MRP of a presenter at the BBC, which sells no advertising, so wages may reflect negotiating power and agents rather than productivity.

Wage data also ignore bonuses and other financial and non-financial rewards, such as job security, pensions and flexible hours, so headline differences may overstate the true gap.

Competition from Sky and streaming services such as Netflix bids up the pay of a few stars, so the BBC argues it must pay market rates or lose them.

Differentials are also likely to narrow in the long run. Increased transparency, as the BBC was forced to publish pay above £150 000, created public pressure: several male presenters took pay cuts and female pay rose. The Equal Pay Act, compulsory gender pay gap reporting for firms with 250 or more employees and the National Minimum Wage reduce differentials, and gaps in employment are becoming shorter as shared parental leave grows. Compared with an industry such as football, where differences are even larger and mostly reflect MRP, broadcasting differentials are more influenced by discrimination.

In conclusion, wage differences in UK broadcasting exist because of a combination of reasons. Differences between occupations mainly reflect demand and supply, which is efficient, while

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gender differences within the same occupation reflect labour market imperfections such as discrimination and career breaks. Greater transparency and regulation are likely to reduce the gender gap over time, but differences based on scarce talent and MRP will remain.

Question 8

Collusion is an agreement between firms to limit competition, for example by fixing prices or output or by sharing out markets. It can be overt, as a formal cartel, or tacit, without a formal agreement. It is illegal in the UK under the Competition Act 1998 and in the EU. I will use the European truck manufacturing industry.

Collusion is most likely in oligopoly, where a few firms dominate. The six truck makers, including Scania, Daimler, Volvo, DAF and Iveco, supplied around nine in ten medium and heavy trucks in Europe. High concentration creates interdependence: each firm's best price depends on how rivals react, which creates uncertainty. Colluding reduces this uncertainty and avoids the costs of direct competition, such as price wars and heavy marketing.

The main reason is joint profit maximisation. By agreeing prices, the firms act like a single monopolist, producing where industry MC = MR at a higher price, earning supernormal profit and higher producer surplus and shareholder value. Game theory shows why. In my pay-off matrix, if both firms set a high price each earns £80m, but each has an incentive to cut its price to gain £110m. Low price is the dominant strategy, so without agreement the Nash equilibrium is both low price, earning only £40m each. Collusion moves both firms to the high price outcome, £80m each.

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		Firm B (e.g. Daimler)	
		High price	Low price
Firm A (Scania)	High price	A £80m, B £80m	A £20m, B £110m
	Low price	A £110m, B £20m	A £40m, B £40m

A second reason is to pass on rising costs. The truck makers agreed to coordinate prices after the additional costs of meeting emission regulations. Without collusion, any firm raising prices would lose market share to rivals, but together they could pass the full cost on to customers, who had few alternatives. Demand for trucks from hauliers is price inelastic, as goods must still be transported, so higher prices raised revenue.

Collusion also lets firms protect market share against new entrants and rivals, control supply and restrict choice. Barriers to entry in truck making are already high, such as huge capital costs and economies of scale, so firms inside a cartel face little threat. Finally, weak detection encourages collusion: the cartel lasted 14 years, which suggests asymmetric information and that tacit collusion is difficult to prove.

However, collusion has major risks. It is illegal: Scania was fined €880 million (£771 million) and the other firms were fined around €3 billion in total, while hauliers sued for compensation. Brand image is damaged. MAN avoided a fine by acting as a whistleblower under the leniency programme, so the chance of whistleblowing makes cartels unstable.

The pay-off matrix also shows the risk of cheating: each firm can earn £110m instead of £80m by secretly undercutting, so collusive agreements often break down. Their success depends on the number of firms, as six is manageable but many are not, on firms having similar size and costs, on the degree of trust, the level of barriers to entry, the PED of demand and the effectiveness of regulation. Collusion can also lead to complacency, a lack of innovation and x-inefficiency, leaving firms open to new entrants such as Tesla's electric trucks.

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It is also debatable whether some behaviour is collusion or simply the nature of oligopoly. Price stability may come from price leadership or the kinked demand curve rather than an agreement, and some cooperation can benefit consumers, for example sharing research into cleaner engines, which may help the survival of an industry facing very high regulatory costs. In conclusion, firms collude mainly to increase joint profits and reduce uncertainty, especially in concentrated markets with high barriers to entry, inelastic demand and a common cost shock, as in truck making. However, as fines grow and leniency programmes encourage whistleblowing, the risks of collusion increasingly outweigh the benefits, so the most significant factor is how likely firms think they are to be caught.

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