Practice papers: Economics 'B'

Paper 3: The economic environment and business

For Edexcel's Economics 'B' A level in 2017

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Contents

These practice papers are designed to give teachers assessment tools which they may use to prepare students for the examination on 19th June 2017. They are based around the 2017 pre-release material on the subject of *Government intervention and market failure in the UK*.

Each of the three practice papers has the following key features:

1. They are laid out in the general format of the Paper 3 examination, and so help students to become familiar with the approach which they will face when they sit the Paper.

2. Accompanying each practice paper is a mark scheme, based around Edexcel's own mark scheme. These both assist teachers in marking students' work, and help students understand what they need to do to improve their mark.

3. Also accompanying each practice paper is a set of suggested answers. These are rather longer than most students would have time to produce in an examination setting, and also contain more analysis and detail than students would be expected to know. They inevitably contain some points of view personal to the author, and this is particularly the case with the politically charged issues associated with inequality. With the exception of multiple choice questions, there is of course no such thing as a single 'right' answer.

February 2017

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Write your name here

Surname	Other name

Economics B

Centre Number: | | | | | |

Candidate Number | | | | |

Paper 3: The economic environment and business

Practice paper No. 1

Date:

Time: 2 hours

Paper Reference
9EB0/03

You do not need any other materials.

Total Marks

Instructions

Use **black** ink.
Fill in the boxes at the top of this page with your name, centre number and candidate number.
Answer **all** questions.

Information

Total marks for this paper is 100.
The marks for each question are shown in brackets.

Advice

Read each question carefully.
Keep an eye on the time.
Try to answer every question.
Check your answers if you have time at the end.

Answer all questions.

SECTION A

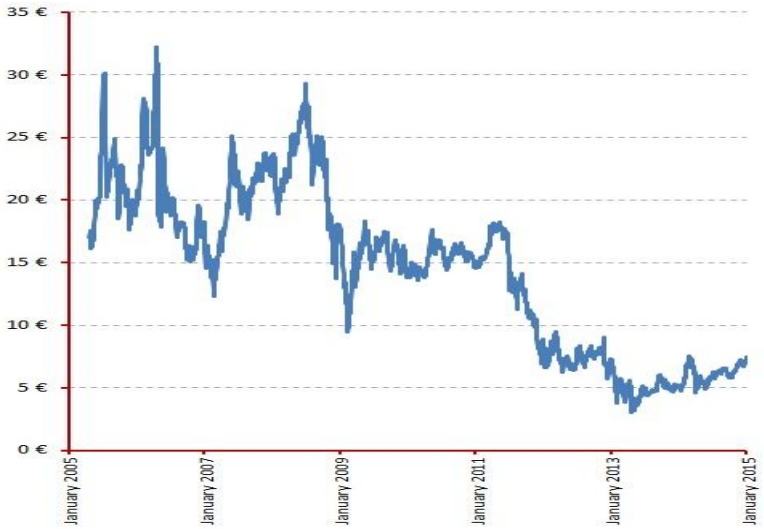
Read the following extracts (A to C) and Figures 1 and 2 before answering Question 1.

Extract A

Tradable pollution permits

Tradeable pollution permits are a market-based method of reducing the external costs associated with pollution. First introduced in the USA in the 1990s, tradeable pollution permits form the basis of the EU's Emission Trading System (EU ETS). Also known as 'cap and trade', the maximum units of pollution allowed per year form the cap.

Companies may then buy and sell these permits among themselves, the reasoning being that they will end up in the hands of those companies who find it most expensive to reduce pollution, while others will find it cheaper to reduce pollution rather than buy the permits. In this manner, pollution is reduced to the limit set by the cap while imposing the smallest possible level of costs on society as a whole.



The EU ETS was set up in 2005. In the current trading period (spanning the years between 2013 and 2020) the permits are auctioned off to the highest bidder while the 'cap' has been steadily lowered by 21% from 2005 through to 2020. Despite this, the market price of pollution permits has steadily fallen (see Figure 1). This has led some to suggest that the 'cap' is much too high.

Figure 1: The price of an EU permit (2005-15) to emit one tone of CO2

Extract B

Paying for flood defences

One of the costs of global warming is rising sea levels and an increased frequency of extreme weather events. This has led to more frequent flooding in the UK, currently estimated to cause damage costing £1,300 million each year. One solution is to build flood defences, which are normally thought of as a public good. While the government pays for most of the cost, it is keen to encourage others to contribute as well.

For example, ASDA paid £2 million in 2010 towards a £7.5 million scheme to protect 200 properties in Hereford. Its contribution was a condition of being given planning permission to build a new store. More recently, a £25 million flood barrier has been proposed on the River Parrett, aimed at protecting the low-lying areas of Somerset in the west of England. It will in part be paid for by a 'roof tax' on all new housing developments in the area. Central government will remain the major contributor.

Extract C

Dealing with market failure in the energy industry

Paying gas and electricity bills is one of the biggest UK household expenses. They are also a major cause of greenhouse gas emissions. One government response has been to impose a Climate Change Levy (i.e. a tax) on businesses for their energy use. However, users of 'green' energy generated from renewable sources do not have to pay it. Another approach has been to put in place regulations that require energy companies to provide insulation and other energy-saving measures for their customers on low incomes.

A further source of market failure in the industry has been the market power enjoyed by the six main companies. The suspicion has often been aroused that they have not energetically competed with each other either on price or on their quality of service. Furthermore, many households never switch suppliers giving an effective monopoly to their current provider, who can charge them more than they offer to new customers. However, due to incentives provided by the industry regulator, OFGEM, the market has recently become much more competitive as Figure 2 below shows.

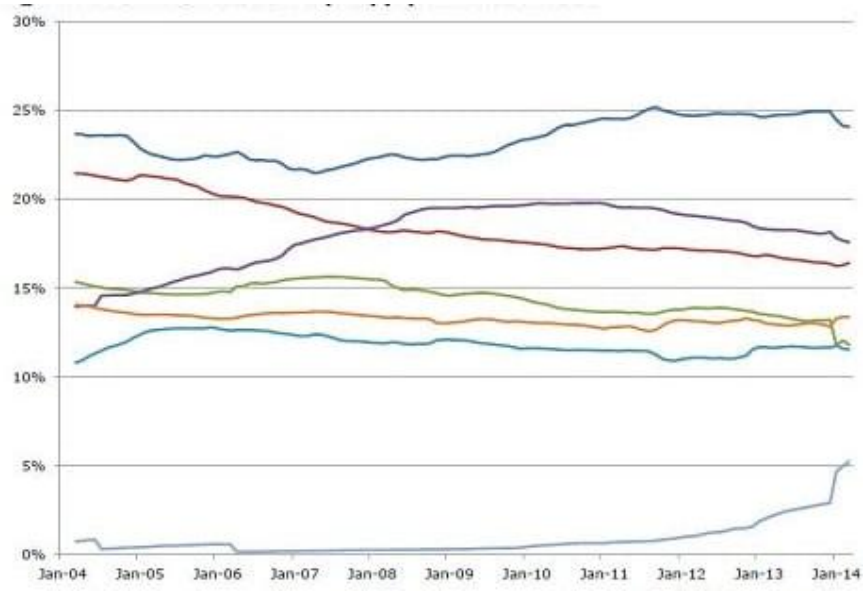


Figure 2: UK energy market shares, 2004 to 2014, showing the 'big six' companies and others

SECTION A QUESTIONS

1a Using a suitable diagram discuss why the price of EU pollution permits may have fallen (Extract A, paragraph 3 and Figure 1). **(8)**

1b Assess the view that public goods such as flood defences have to be paid for out of general taxation (Extract B). **(10)**

1c Assess the likely impact on consumers of firms having market power. **(12)**

1d Evaluate the various types of government intervention designed to deal with the market failures caused by CO2 emissions. **(20)**

SECTION B

Read the following extracts (D to F) and Figure 3 before answering Question 2.

Extract D

Why do so many households never switch energy suppliers?

One of the key reasons why households pay more for their energy than they have to is the failure of so many to switch suppliers, or to switch tariffs with their existing supplier. Typically 'variable rate' deals whereby the price you pay changes with the current market price of energy end up a lot more expensive than 'fixed rate' deals where the customers agrees to a fixed price for a year or so in advance.

So why don't more households switch? One reason is that we are never confronted directly with a choice in the way that we are, for example, when we buy bread from a supermarket. Then again, they may simply have imperfect information as to what deals are on offer. Why does this matter? It matters because households that never switch end up paying a lot more. Currently those who never switch are estimated to pay £260 more per year than those who do.

However, help is at hand. OFGEM, the industry regulator, will be requiring energy suppliers to write directly to their longest-established customers giving actual examples of how much they could save if they switched to one of their fixed rate deals, or to that of a competitor. This and other measures are already having an impact with a record 4.8 million customers switching suppliers in 2016, up by a million on the 2015 figure.

Figure 3: The market share of the UK's 'big six' energy suppliers, 2004-2014

Figure 3	UK energy market share %		
Firm	**2004**	**2009**	**2014**
Centrica	23	22	23
E.ON	22	18	15
Npower	15	15	11
SSE	14	19	16
EDF	14	13	13
Scottish Power	11	12	11

Extract E

First Utility: leading the charge on the 'big six' energy suppliers
Over 40 energy suppliers have entered the UK energy market over the past few years, encouraged by Ofgem which has exempted the smallest suppliers from certain 'green' taxes. Typically these new players do not own any expensive generating capacity like the big six. Rather, they buy their gas and electricity on the wholesale market. Their main operations are then customer service and marketing their brand.

One of the early success stories is First Utility. The market leader of the challenger brands it had 880,000 customers at the end of 2015 leading to revenues of £80 million, an increase of 51% over the year. However, these extra customers have come at a price: a collapse in profits by 84% to just £1.7 million. First Utility has had to invest in extra call-centre capacity to deal with customer enquiries, while OFGEM have ordered it to conduct an independent review of its poor handling of complaints.

As the sector becomes more competitive customers can expect to see what is seen in every competitive industry: the firms offering the lowest prices tend to skimp on quality. And some players will not survive the competitive struggle. In 2016 the first of the new entrants collapsed. GB Energy, with a customer base of 160,000 households, went into liquidation.

Extract F

Smart meters
First Utility, along with many other suppliers, is offering free 'smart meters' to its customers. These devices send readings of gas and electricity usage direct to the supplier so that householders are spared the bother of reading their meters themselves. They also enable the householder to receive a minute-by-minute account of their gas and electricity usage which helps them reduce their spending.

Smart meters are part of the information revolution. Some new domestic appliances such as fridges and washing machines come with computer chips which give their individual recordings of the amount of energy they use. As imperfect information becomes a thing of the past consumers will be in a much better position to make rational choices, choices that maximize the benefits they receive.

SECTION B QUESTIONS

2a Discuss the potential impact of more competition on First Utility (Extract E and F). **(8)**

2b Assess the consequences of imperfect information on consumers. **(10)**

2c Using an appropriate calculation, assess the likely impact of the changing six-firm concentration ratio on stakeholders in the UK energy industry (Figure 3). **(12)**

2d Evaluate the extent to which market failure caused by monopoly power can be put right by government intervention. **(20)**

Practice paper 1 – Mark scheme

General marking guidance:

1. The 'possible content' below gives suggestions for what a candidate might write. However, any relevant content should be rewarded.
2. Markers should use the full range of marks. They should not hesitate to give full marks for any question where the requirements of the mark scheme have been fully met. Equally, an answer that meets none of the criteria should always be given zero.
3. Where a question directly mentions some of the stimulus material then this must be referred to in the answer in order to get full Application marks. Other references based on the candidate's own knowledge may also be rewarded.
   So in this particular Practice paper 1 direct reference to the Extracts is required for 1a, 1b, 2a and 2c. It is not required for the other questions.

Question 1a	**Deciding on the correct level**	**Mark**
Level		**Max: 8**
	An answer with no merit	0
Level 1	Occasional elements of knowledge, very little application, unconvincing arguments, no clear answer to question.	1-2
Level 2	Some knowledge and application, developed arguments, limited judgement	3-5
Level 3	Convincing knowledge and application, well-developed arguments and balanced judgement.	6-8

Question 1a	**Possible content:** Using a suitable diagram discuss why the price of EU pollution permits may have fallen (Extract A, paragraph 3 and Figure 1).	**Mark scheme**
Knowledge	Diagram showing inward shift in demand with fall in price clearly labelled	2
Application	Fall in price unlikely to be due to outward shift in supply as available permits have been 'steadily lowered' (Extract A)	2
Analysis	The particularly sharp fall in price over 2008-09 could be accounted for by the recession.	2
Evaluation	However, we need other reasons to explain the general fall over 2005 to 2015. Possibly relocation of manufacturing to China and/or advances in 'clean' technology – both of which would reduce the demand for pollution permits.	2

Question 1b	Deciding on the correct level	Mark
Level		**Max: 10**
	An answer with no merit	0
Level 1	Occasional elements of knowledge, very little application, unconvincing arguments, no clear answer to question.	1-2
Level 2	Some knowledge and application, developed arguments, limited judgement	3-4
Level 3	Convincing knowledge and application, well-developed arguments and some attempt at balanced judgement.	5-7
Level 4	Convincing knowledge and application, well-developed and evaluated arguments, impressive focus on question throughout, and an informed, personal and balanced judgement.	8-10

Question 1b	**Possible content:** Assess the view that public goods such as flood defences have to be paid for out of general taxation (Extract B).	Mark scheme
Knowledge	Explanation of a public good: non-excludable and non-rivalrous (i.e. non-diminishable).	2
Application	So if a flood barrier is built then no house within the protected area can be excluded from the protection nor does one house's protection reduce that available to others – refer to 200 houses protected in Hereford.	2
Analysis	Given the problem of 'free riders' the traditional solution has been for government to pay for public goods out of general taxation (as with the police and military).	3
Evaluation	However, tax-raising does not have to be at national level. Any particular flood defence only protects a portion of land. So the protected houses can be charged, Alternatively, as shown in Extract B, new developments in the protected area can be charged which might be more acceptable to existing residents.	3

Question 1c	Deciding on the correct level	Mark
Level		**Max: 12**
	An answer with no merit	0
Level 1	Occasional elements of knowledge, very little application, unconvincing arguments, no clear answer to question.	1-2
Level 2	Some knowledge and application, partially developed arguments, limited judgement	3-5
Level 3	Convincing knowledge and application, well-developed arguments and some attempt at balanced judgement.	6-9
Level 4	Convincing knowledge and application, well-developed and evaluated arguments, impressive focus on question throughout, and an informed, personal and balanced judgement.	10-12

Question 1c	**Possible content:** Assess the likely impact on consumers of firms having market power.	Mark scheme
Knowledge	Market power exists when firms are not operating within a competitive market structure; rather, within an oligopoly or monopoly.	2
Application	This enables the firms to charge higher prices and/or offer lower quality (quote from Evidence C).	2
Analysis	This increases the opportunity cost to consumers of making the purchase, and reduces their overall standard of living. There may also be an opportunity cost in terms of time spent making complaints. [Reference may also be made to reduced consumer surplus and, more generally, allocative and productive inefficiency]	4
Evaluation	Extent of impact depends on extent of market power. It is entirely possible that the 'big six' competed vigorously for customers e.g. Figure 2 shows that, between 2004 and 2008, before the new challengers entered the market, one firm gained a lot of market share while another one lost out. Also extent of impact depends on relative importance of industry to customers (energy takes a high proportion of household incomes); and the availability of substitutes. For example, households can protect themselves from energy bills to some degree by insulating homes. An alternative approach would be to consider ways in which government can reduce this impact on consumers by regulating monopolies through the CMA and industry regulators.	4

Note: Questions 1c and 1d – unlike 1a and 1b – do not make explicit reference to the Extracts. Therefore full marks may be obtained on 1c and 1d without reference to the stimulus material if other examples from the candidate's own knowledge are given.

Question 1d	**Deciding on the correct level**	**Mark**
Level		**Max: 20**
	An answer with no merit	0
Level 1	Occasional elements of knowledge, very little application, unconvincing arguments, no clear answer to question.	1-4
Level 2	Some knowledge and application, partially developed arguments, limited judgement	5-9
Level 3	Convincing knowledge and application, well-developed partially evaluated arguments and some attempt at balanced judgement.	10-15
Level 4	Convincing knowledge and application, well-developed and fully evaluated arguments, impressive focus on question throughout, and an informed, personal and balanced judgement showing some sophistication.	16-20

Question 1d	**Possible content:** Evaluate the various types of government intervention designed to deal with the market failures caused by CO2 emissions.	**Mark scheme**
Knowledge	Explanation of <u>at least two</u> - e.g.: taxation, subsidies, regulation, direct government provision, information provision and tradable permits [if tradable permits are chosen, no credit can be given for a lengthy quotation from Extract A].	4
Application	<u>At least two examples throughout answer, for example</u>: Direct government provision of public goods paid for out of taxation (refer to flood defences, Extract B). Taxation of goods generating external costs – such as contributing to global warming (refer to climate change levy, Extract C). Regulation of goods generating external costs (refer to energy company requirement to insulate low income households, Extract C). Control of market power (refer to work of Ofgem, Extract C). **If only one example discussed, cap at Level 2.**	4
Analysis	Explain how free markets can lead to under-production where market power exists (Extract C) Or even no production in the case of public goods (Extract B). Or over-production in the case of goods generating external costs (Extracts A, C). Reward appropriate informed references to allocative and productive efficiency, and to inequality. Reward relevant diagrams.	6
Evaluation	Looking for an evaluation of two or more government interventions by addressing the limitations of each and/or making direct comparisons between two approaches. Short-term and long-term distinction. For a top mark look for nuanced answer e.g. discussing the circumstances in which some interventions might work better than others; or for discussion of wider issues e.g. impact of different government interventions on macro-economic objectives such as reducing the budget deficit.	6

Note: Questions 1c and 1d – unlike 1a and 1b – do not make explicit reference to the Extracts. Therefore full marks may be obtained on 1c and 1d without reference to the stimulus material if other examples from the candidate's own knowledge are given.

Q 2a	Deciding on the correct level	Mark
Level		**8**
	An answer with no merit	0
L 1	Occasional elements of knowledge, very little application, unconvincing arguments, no clear answer to question.	1-2
L 2	Some knowledge and application, developed arguments, limited judgement	3-5
L 3	Convincing knowledge and application, well-developed arguments and balanced judgement.	6-8

Q. 2a	**Possible content:** Discuss the potential impact of more competition on First Utility (Extract E and F).	Mark scheme
Kn	More competitive structures tend to reduce prices and force up quality. The profits of companies therefore decline to their disadvantage. Bankruptcy is also a possibility.	2
Ap	The increase in competition may be one reason for the decline in First Utility profits (reference figures in Extract E). They could follow GB Energy into liquidation.	2
An	Given that the number of households is relatively stable, more entrants mean lower revenue on average for all the energy companies. While new entrants may well adopt penetration pricing to get established putting pressure on everyone's profit margins.	2
Eval	On the other hand, new entrants may focus marketing effort on drawing away the customers of the 'big six' many of whom are paying way over the odds. First Utility as a new, leaner, more cost-efficient company may not be adversely affected.	2

Q 2b	Deciding on the correct level	Mark
Level		**10**
	An answer with no merit	0
L 1	Occasional elements of knowledge, very little application, unconvincing arguments, no clear answer to question.	1-2
L 2	Some knowledge and application, developed arguments, limited judgement	3-4
L 3	Convincing knowledge and application, well-developed arguments and some attempt at balanced judgement.	5-7
L 4	Convincing knowledge and application, well-developed and evaluated arguments, impressive focus on question throughout, and an informed, personal and balanced judgement.	8-10

Q. 2b	**Possible content:** Assess the consequences of imperfect information on consumers.	Mark scheme
Kn	Reduced standard of living as may pay too much. Reduced benefits from purchases if goods do not perform as expected.	2
Ap	Reference Extract D where 'non-switchers pay £260 more than switchers. Also Extract F where detailed energy usage information via smart meters may help households cut out waste from their energy usage.	2
An	Imperfect information an example of market failure – may lead to either over- or under-production. Also perpetuates market power if consumers are not aware of alternatives.	3
Eval	Consumers may be protected from adverse effects of imperfect information e.g. if government regulation enforces quality standards e.g. for gas and electricity installations in the home. E.g. if government regulators such as Ofgem create a competitive environment such that all providers eventually feel compelled to offer low prices.	3

Question 2c	Deciding on the correct level	Mark
Level		**Max: 12**
	An answer with no merit	0
Level 1	Occasional elements of knowledge, very little application, unconvincing arguments, no clear answer to question.	1-2
Level 2	Some knowledge and application, partially developed arguments, limited judgement	3-5
Level 3	Convincing knowledge and application, well-developed arguments and some attempt at balanced judgement.	6-9
Level 4	Convincing knowledge and application, well-developed and evaluated arguments, impressive focus on question throughout, and an informed, personal and balanced judgement.	10-12

Question 2c	**Possible content:** Using an appropriate calculation, assess the likely impact of the changing six-firm concentration ratio on stakeholders in the UK energy industry (Figure 3).	Mark scheme
Knowledge	Concentration ratios. Connection between concentration ratios and market structure.	2
Application	Working out that the six-firm concentration ratio has fallen from 99% in 2004 and 2009, to 89% in 2014 (Figure 3).	2
Analysis	And therefore the concentration ratio has fallen, making the industry more competitive. This will directly benefit consumers, who will enjoy lower prices and higher quality, while disadvantaging shareholders, suppliers and employees who are likely to see downward pressure on wages and profits.	4
Evaluation	However, six-firm concentration ratio still relatively high. The market structure may remain relatively uncompetitive if large numbers of households never switch (reference Extract D with discussion of increased number of switchers). And collapse of GB Energy may discourage further switching to the new challengers. On the other hand, 'big six' may feel forced to act competitively to preserve their existing market shares. A top answer might reference newly-acquired contestability in the market.	4

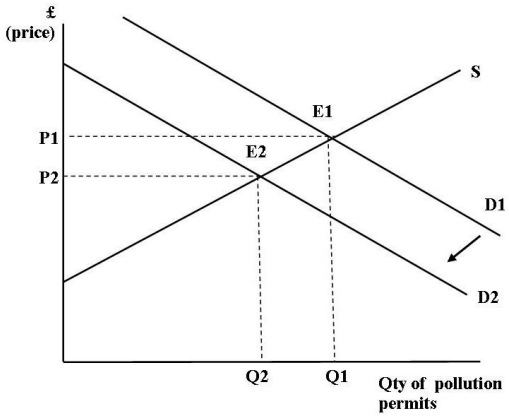
Question 2d	Deciding on the correct level	Mark
Level		**Max: 20**
	An answer with no merit	0
Level 1	Occasional elements of knowledge, very little application, unconvincing arguments, no clear answer to question.	1-4
Level 2	Some knowledge and application, partially developed arguments, limited judgement	5-9
Level 3	Convincing knowledge and application, well-developed partially evaluated arguments and some attempt at balanced judgement.	10-15
Level 4	Convincing knowledge and application, well-developed and fully evaluated arguments, impressive focus on question throughout, and an informed, personal and balanced judgement showing some sophistication.	16-20

Question 2d	**Possible content:** Evaluate the extent to which market failure caused by monopoly power can be put right by government intervention.	Mark scheme
Knowledge	Of monopoly power in the context of market failure: leading to under-production, higher prices and allocative and productive inefficiency as well as greater inequality. Types of appropriate government intervention: price and quality controls, work of Competition and Markets Authority (CMA) and industry regulators such as OFGEM	4
Application	Reference the £260 extra paid by those over whom energy suppliers have monopoly power (Extract D); work of OFGEM in encouraging competition (Extract D)	4
Analysis	Work of CMA in i) preventing mergers which might lead to a Substantial Lessening of Competition (SLC), and ii) in conducting market investigations, including energy. New suppliers 'encouraged by OFGEM' (Extract E). Ability to a) diminish monopoly power or prevent it arising in the first place. Or, in the case of natural monopolies such as the National Grid, permanently controlling price and quality.	6
Evaluation	Discussion of government failure. Could include administrative costs of CMA and OFGEM; need to focus on major national companies leaving many local monopolies unchallenged; information gaps e.g. difficulty of proving collusion. Top answers could refer to - length of time taken e.g. energy industry privatized in the 1980s but has taken 30 years to introduce real competition. - inherent limitations when dealing with natural monopolies such as the National Grid. - role of free market in finding own solutions to market power e.g. price comparison sites; multiple providers available online.	6

Practice paper 1 - suggested answers

1a *Using a suitable diagram discuss why the price of EU pollution permits may have fallen (Extract A, paragraph 3 and Figure 1).* **(8)**

Answer: Prices fall either because demand has fallen or because supply has increased. In this case we know that supply has actually been reduced "by 21% from 2005 through to 2020" so the fall in price must reflect an inward shift in demand. This is illustrated below:



Such an inward shift accounts for the fall in price of a pollution permit from approximately €25 over 2005-07 to €5 over 2013-15.
One likely cause of this inward shift in demand is the 2008-09 recession. As the demand for goods fell so also would the demand for the pollution permits needed to make them. This fits well with Figure 1 where there is a particularly large drop in price over 2008-09.

However, this is not necessarily the only reason or even the main one as the price of pollution permits continued to fall after this date. Other explanations could be the long-term shift of European manufacturing to lower-cost locations in the Far East and/or the increasing energy-efficiency of manufacturing as technological advances lead to savings on energy use, and particularly the replacement of fossil fuels with energy from green sources. In conclusion, the fall in the price of pollution permits is likely to have been caused by a combination of these factors, which have together shifted the demand curve inwards by a substantial amount.

1b *Assess the view that public goods such as flood defences have to be paid for out of general taxation (Extract B).* **(10)**

Answer: A 'public good' is one that is non-excludable and non-diminishable. By 'non-diminishable' we mean that one person's use of it does not leave anyone else with less. So the fact that my house is protected by a flood barrier does not leave my neighbour's house any less protected. And by 'non-excludable' we mean that no-one can be prevented from enjoying it. So if your house is behind the flood barrier there is nothing anyone can do to prevent your house from being protected by it.
It is this feature of 'non-excludability' which means the free market provides little, if any, by way of public goods. For if no-one can be prevented from enjoying it why should anyone pay for it? The whole reason why we pay for goods and services is to give us something over which we have exclusive rights. The moment everyone can access a good the private benefit accruing to anyone who pays for it is tiny compared to the broader social benefit, and so the free market output level will be way below the efficient level.

In order to prevent this very high under-production, governments have traditionally taken responsibility for providing public goods such as flood defences, the military and the highways. Then they get paid for out of general taxation.

However, Extract B reminds us that they do not have to be paid for out of <u>general</u> taxation. Any particular flood defence does not protect every house in the whole country, only those within its immediate target area. There is therefore a case for a much more localized tax, which only those in the protected area pay. And since such a tax would be very unpopular, Extract B mentions an ingenious way to disguise its impact. Only property developers in the affected area have to pay the local tax, which will then get passed onto consumers in higher house prices, or in higher food prices at the new super market. In conclusion, governments have to pay for public goods, but the mechanism by which they get the money does not necessarily have to be out of general taxation. A more local tax is also a possible method of finance.

1c *Assess the likely impact on consumers of firms having market power.* **(12)**

Answer: 'Firms have 'market power' when they are not operating within a competitive market structure. They might be the only firm in the industry in which case they will be a monopoly. Or they might be one of just a few

firms within the industry. Within such an oligopolistic structure, the major companies will have some ability to increase prices beyond the competitive level and/or produce goods of lower quality. Alternatively they may collude to increase prices or reduce quality, notwithstanding the fact that such behavior is illegal. Extract C presents us with a variant of this behavior by suggesting that the Big Six energy companies "have not energetically competed with each other" – as they would have been forced to in a genuinely competitive market. The impact of such market power on consumers is almost wholly negative. Prices are higher, and this reduces the consumer surplus gained while profits rise correspondingly. Other households might limit their involvement in the market – for example by not building an extension due to the potential cost of heating it, or by 'downsizing' to save on heating bills.

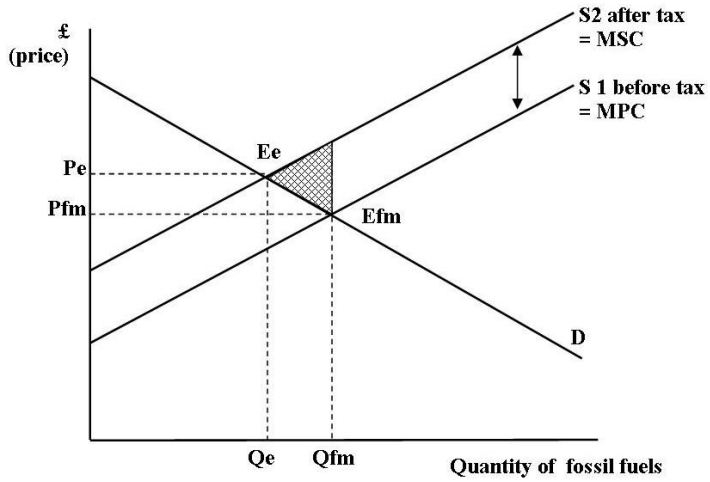
At the same time as prices go up, quality is likely to come down. While gas and electricity are both homogenous goods of a fixed quality yet our energy suppliers can nevertheless offer us a good or a poor service. For example, they might make it easy or hard to switch suppliers, to disconnect or to reconnect a property, and deal with complaints quickly and fairly or slowly and begrudgingly. We may therefore conclude that market power, both in the energy industry and elsewhere, will be harmful to consumers.

However, is market power always harmful? If firms with market power are effectively controlled by government then the harm can be much reduced. For example, all gas and electricity in the UK is piped to our homes by a 'natural monopoly', the National Grid. It is forced by the industry regulator, OFGEM, to charge its customers (the gas and electricity companies) a fair, competitive price for its transmission services. On top of this, OFGEM set it quality targets which it has to meet or face a series of fines. By such means, firms with market power can actually be controlled so that the harm done to consumers is much reduced. Nonetheless, actual competition does a much better job than government intervention so wherever possible the government seeks to remove market power by introducing competition rather than supervising a monopoly.

1d *Evaluate the various types of government intervention designed to deal with the market failures caused by CO2 emissions.* **(20)**

Answer: CO2 emissions generate an external cost in that they lead to global warming, which is likely to have a substantial adverse effect on humanity several decades from now. CO2 emissions themselves are created by burning fossil fuels such as coal, gas and oil. This releases into the atmosphere the CO2 which was previously stored underground in mineral deposits.

The standard economics analysis suggests that goods which generate external costs lead to over-production and market failure because these external costs are not taken into account by the buyers and sellers of the products. The obvious solution is to internalize those externalities, for example by means of a carbon tax. Then the producers and consumers of fossil fuels will have to take into account the external costs of their activities through paying the tax. By making fossil fuels more expensive the tax will reduce demand as the supply curve shifts inwards. Furthermore, it will stimulate innovation into other, carbon-free methods of generating energy such as wind and solar power while also incentivising the development of electric vehicles to run on this clean energy. The diagram below shows how a carbon tax would work:



The free market over-produces at Qfm leading to a deadweight welfare loss as indicated by the shaded area. This welfare loss arises because the units of output between Qe and Qfm contribute more to private benefit than they do to private cost whereupon the free market produces them. However, they contribute less to social benefit than they do to social cost so they actually reduce the net benefit to society. The marginal external cost is indicated by the vertical distance between the MPC and MSC curves. If the carbon tax is set at this same level then the external cost is internalized and output will fall to the allocatively efficient level, Qe.

While we do not have a carbon tax in the UK some forms of carbon emission are taxed highly, in part to correct this market failure. For example, the fuel duty of 58 pence per litre that we pay on petrol and diesel at the pumps is way of internalising the external costs of burning fuel. Then again Extract C refers to the Climate Change levy that businesses pay on energy use. The fact that green energy is exempt from the tax – and indeed the name of the tax itself – is evidence that its purpose is to mitigate the external costs of climate change.

How successful is this intervention? There are a number of reasons for thinking it is a long way from perfect. For a start, these taxes do not treat all carbon emissions equally. For example, farmers buying diesel do not pay the full tax nor is there any reason to tax businesses on their heating but not households when they are using the same fuel. But most importantly global warming is a global problem so a purely national tax will not internalise external costs effectively. Finally it should be pointed out that this approach will only work if the external costs of carbon emissions can be accurately measured so that the tax can be set at the correct level. But since these costs lie many decades in the future there is no way of knowing what these costs might be, and indeed different academics come up with wildly differing figures of between £30 and £300 per ton of CO2 emitted.

Another approach is to subsidise alternatives. So if transport by private car is the problem then why not subsidise public transport? This is indeed done, with bus operators receiving the BSOG (Bus Service Operators' Grant) and Network Rail being subsidised to maintain the rail network. Of course one problem with this approach is that it costs the government money and therefore makes it harder to hit the macro-economic deficit reduction target. However, by ensuring that there is a greater range of public transport options it makes demand for private car travel more price sensitive i.e. more price elastic. This will in turn make petrol duty more effective in reducing carbon emissions as more private drivers will have a credible substitute.

In conclusion, a combination of indirect taxation for the goods generating external costs together with subsidies for goods generating external benefits is probably the best approach. Additionally, regulations can be used, for example by specifying the maximum amount of carbon emissions the car manufacturers are allowed to generate from their fleets.

2a *Discuss the potential impact of more competition on First Utility (Extract E and F).* **(8)**

Answer: More competitive market structures tend to force down prices while forcing up the quality and variety of the goods and services on offer. Only by going down this path do firms have a chance of surviving in a competitive market place. While this collective behaviour results in allocative efficiency and increased benefits for consumers it also results in reduced profits for companies. First Utility can therefore expect to suffer a loss of profits as yet more energy suppliers crowd into the market. Indeed, we may already see signs of this in their 'collapse in profits' (Extract E) even while their revenues increased in 2015. Although the Extract does not mention this, it may be that First Utility grew its market share by adopting penetration pricing and so slashing its own profit margin. In the absence of significant entry barriers, and given the homogenous nature of the product, First Utility may well find that low profits are the 'new normal'.

On the other hand, new competitors may focus on eating into the market share of the Big Six. As we see in Figure 3, these dominant companies still account for nearly 90% of the total market and include all the 'non-switching' households who are charged so much more than others. Since we read in Extract D that Ofgem plans to force the Big Six to write letters to these non-switchers to make them aware of rival offers it may well be that this is where the new entrants to the industry will focus their marketing efforts. First Utility, which is already offering low prices, may have less to fear from increased competition – at least for now.

2b *Assess the consequences of imperfect information on consumers.* **(10)**

Answer: When consumers lack relevant information about the markets in which they buy then inevitable they end up with a lower level of benefit than they would otherwise get. At its simplest, if we really knew how the second-hand car we bought was going to perform then we would never buy a 'lemon', a car which subsequently turns out to have hidden faults. Furthermore, the fact that we often know that we don't know makes us reluctant to buy second-hand cars in the first place. So we tend not to buy even perfectly good second-hand cars because we don't know that they really are good models.

Further examples of adverse consequences are given in the Extracts. Extract D says that consumers who never switch energy suppliers end up paying '£260 more per year' than those who do, and suggests that 'imperfect information' may be one of the reasons for not switching. Then again, Extract F points out that our energy bills would probably go down if we knew how much each appliance was using. For example, we would be able to spot the faulty fridge whose insulation wasn't working properly and was therefore consuming large amounts of electricity unnecessarily.

However, imperfect information does not always lead to adverse consequences as often the free market (or indeed government intervention) will make up for consumer ignorance. For example, if a new cheaper supermarket opens up near your existing supplier you do not necessarily have to go to the new competitor to benefit. As long as enough consumers do then your own supermarket will be forced to lower prices in response – to the benefit of all their customers. Individual consumers may therefore be protected from the consequences of imperfect information by the collective knowledge of their fellow shoppers. Equally, government can make up for imperfect information. Even if we do not know the energy efficiency of various fridges on offer, the government may well regulate for a minimum standard that protects everyone from fridges with very poor insulation.

2c *Using an appropriate calculation, assess the likely impact of the changing six-firm concentration ratio on stakeholders in the UK energy industry (Figure 3).* **(12)**

Answer: Figure 3 gives the market shares of the 'big six' energy suppliers. By adding up their market shares we arrive at a six-firm concentration ratio of 99% in 2004 and 2009, sinking to 89% in 2014. Declining concentration ratios are indicative of a greater degree of competition, in this case by showing that new entrants have made enormous progress over the five years between 2009 and 2014. In this short space of time they have together seized a 10% market share of one of the largest industries in the country, while up against very large and very successful companies that have hitherto exerted a stranglehold over the market.

Greater competition normally leads to lower prices, higher quality, more innovation and a greater range of price-quality combinations as rivals seek to carve out niches for themselves as a matter of sheer survival. These consequences are of great benefit to consumers while correspondingly reducing the profits of producers. Not

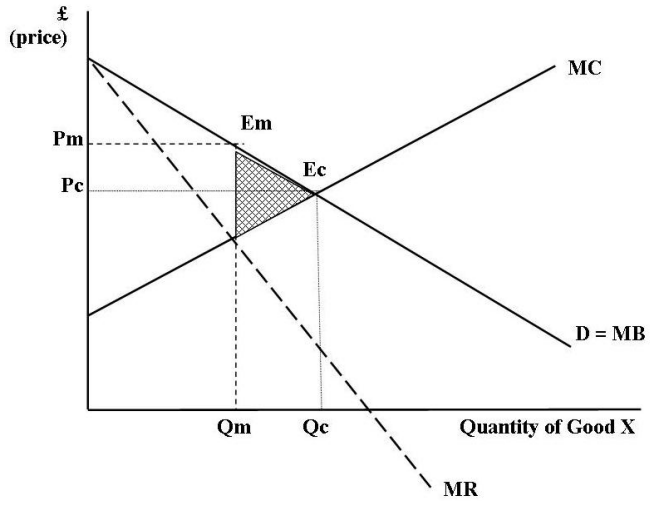
only will the shareholders of energy companies lose out but also their suppliers and employees as competitive forces exert downward pressure on the prices they can charge and the wages they can negotiate. To some extent the workers may be protected if the industry is unionized – but only if union membership is strong in the new competitors as well as the established firms. Otherwise an unequal struggle will develop between the new, low-cost, non-unionised entrants and the older high-cost Big Six. However looking at the wider picture society as a whole benefits from increased competition as the 'deadweight welfare loss' experienced under monopoly power disappears.

Nevertheless, on the basis of Figure 3 alone we cannot say to what extent there has been a change in market structure. It would be entirely possible for six dominant companies to compete very strongly between themselves whereupon a decline of the six-firm concentration ratio would be of little consequence. The market structure could not become more competitive if it was already very competitive. There is some indication of this in the earlier Figure 2, which shows that market shares between the Big Six has some measure of volatility even before the new entrants came on the scene. Between 2004 and 2009 Figure 2 shows one of the Big Six increasing its market share from 14% to 19% while another player experienced a decrease from 22% to 18%. This does suggest some vigorous competition between them, rather than tacit collusion and a carving up of the market.

That said, Extract D provides an indication that competition between the Big Six was limited. The 'non-switchers' in Extract D suggest that at least some customers have tied themselves to a single provider giving that provider the monopoly power to charge them £260 a year more. And while 4.8 million customers switched in 2016 that still leaves the vast majority of households not switching. We may therefore conclude that the falling six-firm concentration ratio is likely to have forced the industry to adopt a more competitive stance leading to the consequences we have already outlined.

2d *Evaluate the extent to which market failure caused by monopoly power can be put right by government intervention.* **(20)**

Answer: Market failure can be caused by a number of different features, among them externalities, imperfect information and monopoly power. In the case of monopoly power, the industry in question under-produces relative to the allocatively efficient output level (Qc in the diagram below). This results in a deadweight welfare loss (shaded area) as some units of output do not get produced even though they would add more to consumer benefit than they would to company costs. This takes place because the monopolist raises his price above the competitive level (Pc) to Pm in order to maximize profits. He is prepared to sacrifice the profits he could make from some potential customers (Qm to Qc) in order to make even more from those customers who are prepared to pay his higher prices (0 to Qm).



The government's main department for dealing with monopoly power is the Competition and Markets Authority (CMA), although many of the privatized industries also have their own government-inspired regulator. In the case of energy this is the Office of Gas and Electricity Markets (OFGEM). These departments have a number of ways of dealing with monopoly power depending on whether the monopoly in question is a 'natural' monopoly or not. If the firm's long-run average cost constantly falls as the company gets bigger then it is a natural monopoly. Then the only way the industry can be run on a cost-efficient basis is to accept that the monopoly is there to stay and then seek to control it.

One example of a natural monopoly is the National Grid. This company owns the infrastructure that transports gas and electricity around the country. Since it has to be cheaper to have one gas network rather than two or more, the industry will always be a monopoly. In this case, the government intervenes by Ofgem setting the price level and quality standards that the National Grid must meet. The company is then unable to exploit its monopoly by charging high prices to the gas suppliers who have no other way of getting their gas to their domestic and business customers.

How effective is Ofgem's intervention? It deals with the main problem which is preventing the National Grid charging a very high price and making excessive profits indefinitely. However, when it comes to controlling the quality of its service to its customers a regulator will never be quite as effective as the forces of competition. It is one thing having a regulator telling you how quickly complaints should be answered, for example. It is quite another thing to have your commercial survival depending on it. For this reason, control of natural monopolies is always seen as a 'second best' option. A much better way for the government to intervene is to encourage competition. In practice this has meant breaking up industries on privatization to isolate the 'natural monopoly' element from the rest of the industry. That is why the government set up competing gas and electricity suppliers while only retaining the distribution network as a monopoly. The same reasoning applied in the railways, where the actual track was hived off to be run as a government-controlled monopoly (now called Network Rail), while train operators themselves are run on a competitive model.

However, most examples of the exercise of monopoly power do not stem from natural monopolies. Rather, substantial economies of scale lead to a few large companies – an oligopoly – whose members then manage to freeze out potential rivals. This was the case with the Big Six energy companies who, as we see in Figure 3, managed to maintain a 99% market share up until 2009. In circumstances such as these, the government has an important role to play in prising open the market to potential rivals. Often action is preceded by a Market Investigation carried out by the CMA to establish the factors which are leading to a lack of effective competition. In the case of the energy market, one of the key barriers to competition is the perceived difficulty in switching suppliers. Ofgem have addressed this in a number of ways including directing households to price comparison websites which can offer them better deals than their existing supplier. And as we read in Extract D, Ofgem are putting in place a new obligation on the Big Six to write to their most 'loyal' (or most sleepy) customers with explicit invitations to switch to cheaper fixed-price tariffs.

We can judge that Ofgem has had some success in putting right market failure by seeing the decline in the six-firm concentration ratio from 99% to 89% over 2009-14. Equally, the increase in 'switchers' from 3.8 million to 4.8 million over 2015-16 suggests that more and more households are getting the message: it pays to shop around. Nevertheless, we must also remember that the energy industry was privatized in the 1980s so it has taken thirty years to reach the point where the market structure is more or less competitive. No doubt market failure can be 'put right' by government intervention but in reality this takes place in a timely manner is another question.

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Write your name here

Surname	Other name

Economics B

Centre Number: | | | | | | Candidate Number | | | | |

Paper 3: The economic environment and business

Practice paper No. 2

Date:

Time: 2 hours

Paper Reference
9EB0/03

You do not need any other materials.

Total Marks

Instructions

Use **black** ink.
Fill in the boxes at the top of this page with your name, centre number and candidate number.
Answer **all** questions.

Information

Total marks for this paper is 100.
The marks for each question are shown in brackets.

Advice

Read each question carefully.
Keep an eye on the time.
Try to answer every question.
Check your answers if you have time at the end.