



# Topic Tests for AS / A Level Year 1 Edexcel A

Theme 1: Introduction to Markets  
and Market Failure

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# Teacher's Introduction

This resource consists of a set of Topic Tests that have been written to support the teaching of A Level Edexcel Economics A Theme 1. It allows teachers and students to check their understanding and consolidate knowledge of each part of the Edexcel specification. In each Topic Test there is a mixture of numerical, multiple-choice, short-answer and essay-style questions of a variety of different difficulties. There are 10 Topic Tests in this resource, following the topics of the A Level and AS specifications.

Importantly, each Topic Test is accompanied by a set of detailed answers that could be handed out to students as a basis for 'model' answers in the examination. Note that although the Topic Test questions aren't always in exam format, the questions within have been written carefully with the intention of testing the range of Assessment Objectives and often borrow aspects that are similar to those in the exam.

Most of the case studies in the Topic Tests include up-to-date economic data and scenarios that should place economic theory in recent history, enrich students' general knowledge of the subject, and prepare students for the Data Response aspects of the examination. Moreover, the resource also includes plenty of opportunities for students to practise the Quantitative Skills outlined in the Appendix of the Edexcel specification.

Most Topic Tests contain 30–40 marks worth of questions, although some tests are shorter to cover each specification topic appropriately according to its scope. It is intended that the longer Topic Tests will take about one hour to complete and should be presented to students *after* teaching the parts of the specification that are to be tested. However, the Topic Tests could also be given to students as homework in order to consolidate their knowledge outside of the classroom, or certain aspects could be used as a supplement to in-class learning.

It is important to note that this resource should be used as a complement to other resources such as textbooks and practice exam papers, and not in isolation. These Topic Tests include plenty of explanation of the theory in the mark scheme, but students should be encouraged to access information as widely as possible.

It is hoped that this resource, as well as offering support for teaching the essential elements of the Edexcel microeconomics specification, will help students fully prepare for their AS and A Level examinations. The economic environment is constantly in flux, and full of fascinating current issues. This resource attempts to share some of these current issues as a basis for teaching in the most interesting way possible, meanwhile encouraging further study from the next generation of Economists!

Happy teaching!

October 2019

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## Mark Scheme: Levels of Response Tables for Long-answer Questions

10 marks

Knowledge (2), application (2) and analysis (2)		
	0	No relevant answer given.
Level 1	1–2	A few concepts may be identified correctly, but inconsistently, and thought behind the causes and effects.
Level 2	3–4	Some knowledge of economic concepts is shown, partially linked to reasoning skills, but may focus too much on one side of an argument.
Level 3	5–6	Knowledge of the economic concepts is very accurate. Links to the question. Analysis is well reasoned and logical, and appropriate for the question.
Evaluation (4)		
		No evaluation.
Level 1	1–2	Limited attempt at evaluation – may be only loosely related to the question and insufficient reasoning.
Level 2	3–4	Accurate, balanced evaluative comments are made, supporting a response directly to the question.

12 marks

Knowledge (2), application (2) and analysis (4)		
	0	No relevant answer given.
Level 1	1–2	A few concepts and examples may be identified correctly, but may lack thought behind the causes and effects.
Level 2	3–5	Some knowledge of economic concepts is shown, partially linked to reasoning skills, but may focus too much on one side of an argument.
Level 3	6–8	Knowledge of the economic concepts is accurate. Links to the question and examples. Analysis is well reasoned, logical and appropriate for the question.
Evaluation (4)		
		No evaluation.
Level 1		Limited attempt at evaluation – may be only loosely related to the question and insufficient reasoning and evidence.
Level 2	3–4	Accurate, balanced evaluative comments are made, supporting a response directly to the question.

15 marks

Knowledge (3), application (3) and analysis (3)		
	0	No relevant answer given.
Level 1	1–3	A few concepts may be identified correctly, but inconsistently, and thought behind the causes and effects.
Level 2	4–6	Some knowledge of economic concepts is shown, partially linked to reasoning skills, but may focus too much on one side of an argument.
Level 3	7–9	Knowledge of the economic concepts is very accurate. Links to the question and examples. Analysis is well reasoned and logical, and appropriate for the question.
Evaluation (6)		
	0	No evaluation.
Level 1		Limited attempt at evaluation – may be only loosely related to the question and insufficient reasoning.
Level 2	3–4	Clear evidence of evaluative comments, though they may be unfair to the argument. Reasoning / supporting evidence is provided but may be insufficient.
Level 3	5–6	Accurate, balanced evaluative comments are made, supporting a response directly to the question.

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20 marks

Knowledge (4), application (4) and analysis (6)		
	0	No relevant answer given.
Level 1	1–3	A few concepts may be identified correctly, but inconsistently, and with little thought behind the causes and effects.
Level 2	4–6	Some knowledge of economic concepts is shown, partially linked to incomplete or basic reasoning skills.
Level 3	7–10	Good knowledge of the relevant economic concepts is displayed, linked to evidence to support the main arguments. Analysis is well developed on one side of an argument.
Level 4	11–14	Knowledge of the economic concepts is very accurate. Links to theory and examples. Analysis is well reasoned and logical, and appropriate for the question.
Evaluation (6)		
	0	No evaluation.
Level 1	1–2	Limited attempt at evaluation – may be only loosely related to the question and reasoning.
Level 2	3–4	Clear evidence of evaluative comments, though they may be unfair or one-sided. Reasoning / supporting evidence is provided but may be weak.
Level 3	5–6	Accurate, balanced evaluative comments are made, supporting a reasoned conclusion directly to the question.

25 marks

Knowledge (4), application (4) and analysis (8)		
	0	No relevant answer given.
Level 1	1–4	A few concepts may be identified correctly, but inconsistently, and with little thought behind the causes and effects.
Level 2	5–8	Some knowledge of economic concepts is shown, partially linked to incomplete or basic reasoning skills.
Level 3	9–12	Good knowledge of the relevant economic concepts is displayed, linked to evidence to support the main arguments. Analysis is well developed on one side of an argument.
Level 4	13–16	Knowledge of the economic concepts is very accurate. Links to theory and examples. Analysis is well reasoned and logical, and appropriate for the question.
Evaluation (6)		
	0	No evaluation.
Level 1	1–3	Limited attempt at evaluation – may be only loosely related to the question and reasoning.
Level 2	4–6	Clear evidence of evaluative comments, though they may be unfair or one-sided. Reasoning / supporting evidence is provided but may be weak.
Level 3	7–9	Accurate, balanced evaluative comments are made, supporting a reasoned conclusion directly to the question.

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## Mark Breakdown Test-by-test

Topic Test	Topic
1.1a	
1.1b	
1.2a	
1.2b	
1.2c	
1.2d	
1.2e	
1.3a	
1.3b	
1.4	

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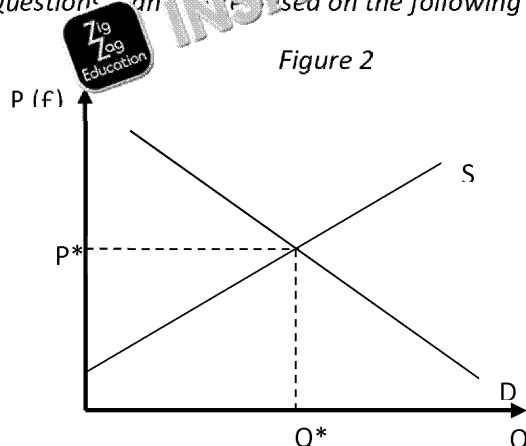


## Topic Test 1.2d How Markets Work: The Interaction of Supply and Demand (1.2.6–1.2.8)

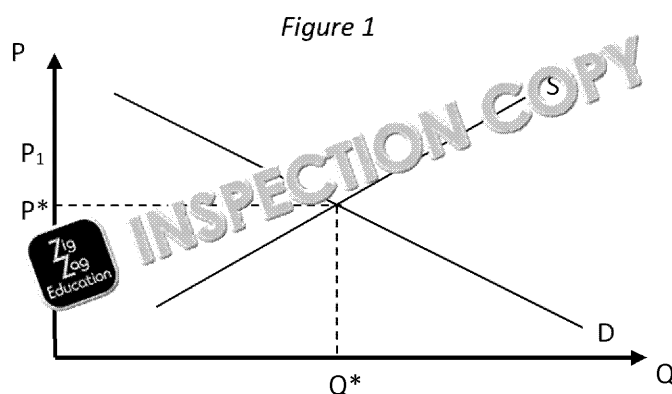
- What is a market?
  - What is meant by market equilibrium?
  - Using a 'Demand and Supply' diagram, identify the point at which a market is in equilibrium.

- What causes disequilibrium in a market?

Questions 3 and 4 are based on the following diagram (Figure 2).



- If demand decreased, which of the following would be true?
  - The market equilibrium quantity would be higher than before and supply will remain the same.
  - The market equilibrium price would be higher than before and supply will remain the same.
  - The market equilibrium price would be lower than before and supply will remain the same.
  - The market equilibrium quantity would be lower than before and supply will remain the same.
- If supply increased, which of the following would be true?
  - There would be an increase in producer surplus.
  - There would be a decrease in producer surplus.
  - There would be an increase in producer surplus and a decrease in consumer surplus.
  - There would be a decrease in producer surplus and an increase in consumer surplus.
- Explain the role of the price mechanism in a market-based economy.
- Explain **one** advantage and **one** disadvantage of the price mechanism.
- What is meant by producer surplus?
- Imagine that the market for Frisbees looks as follows:



Price is currently  $P_1$  which is above the market equilibrium price  $P^*$ . What would be bringing the market back into equilibrium?

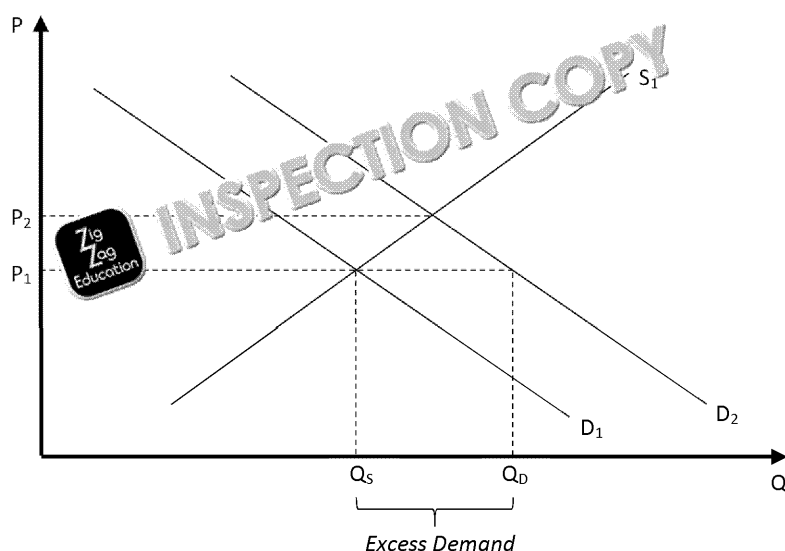
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9. Suppose that the Vietnamese monsoon season were wetter than anticipated, causing demand for waterproof cagoules to increase from  $D_1$  to  $D_2$ . Initially the microeconomic equilibrium is at the intersection of  $D_1$  and  $S_1$  at a market clearing price of  $P_1$ . However, there is disequilibrium in the market at price  $P_2$ .

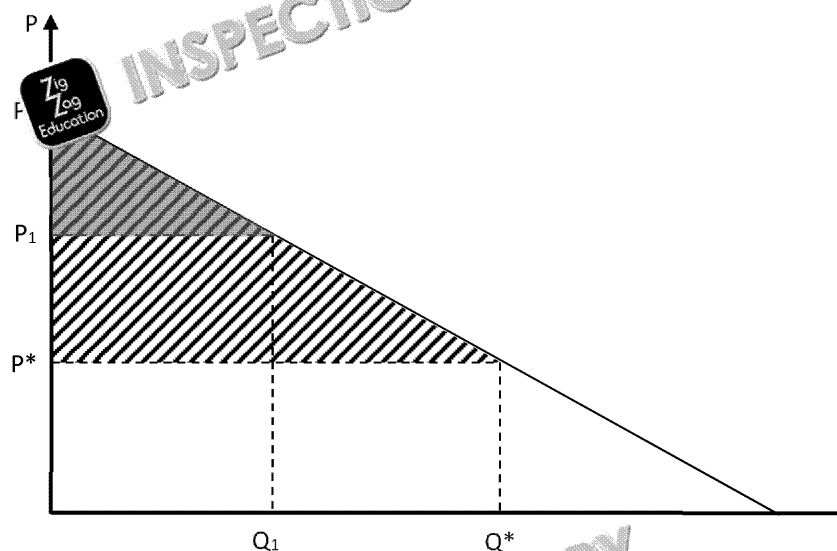
Figure 3



Explain the process through which market forces bring about microeconomic equilibrium.

10. Explain, using one or more diagrams, the difference between producer surplus and consumer surplus.
11. Figure 4 shows the demand curve for bicycles and the consumer surplus at two different prices.

Figure 4



What do you notice about the change in consumer surplus?

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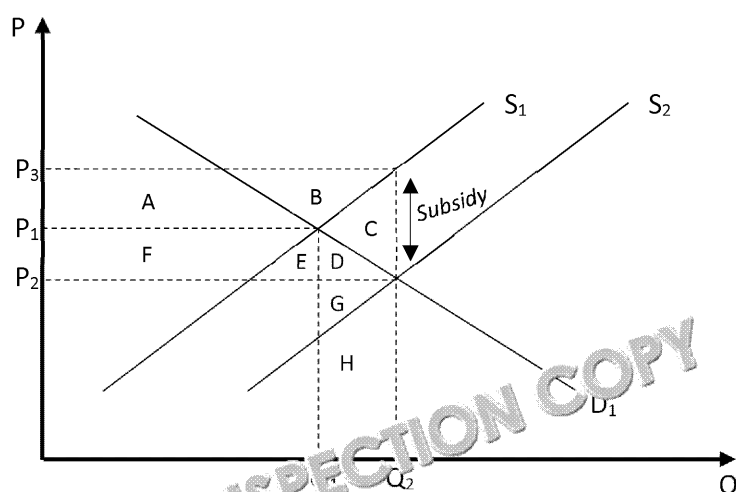




## Topic Test 1.2e How Markets Work: Markets Misbehaving

- Imagine that the UK government is trying to reduce cigarette consumption by imposing a tax on cigarettes to protect its citizens from ill health. The UK's indoor smoking ban has been successful in reducing cigarette consumption so the government has imposed a 40% *ad valorem* tax on a pack of cigarettes.  
 (a) Assess the effect of the government's tax on the market for cigarettes.  
 (b) Assess the effect of this tax on the market for e-cigarettes.
- Explain, using one or more diagrams, how the elasticity of demand for cigarettes affects the amount of the government's tax revenue paid by consumers and producers.
- Suppose that the UK government wished to increase the uptake of health and safety products, such as nicotine patches. It decides to offer a subsidy to producers.

Figure 1



Which of the following areas would represent the UK's total government spending on the subsidy?

- F + E + D
  - C + D + G + H
  - A + B + C + D + E + F
  - A + B + C + D + E + F + G + H
- 'Bounded rationality' is a theory that decision-making is 'bounded' or limited by cognitive ability and the time constraints imposed on the decision-making process.  
 Explain how limits on rationality may affect the traditional view of economic behaviour.
  - Explain, using appropriate examples, **two** sources of bias in economic decision-making.
  - Explain how altruism can affect an individual's decision to donate to charity.

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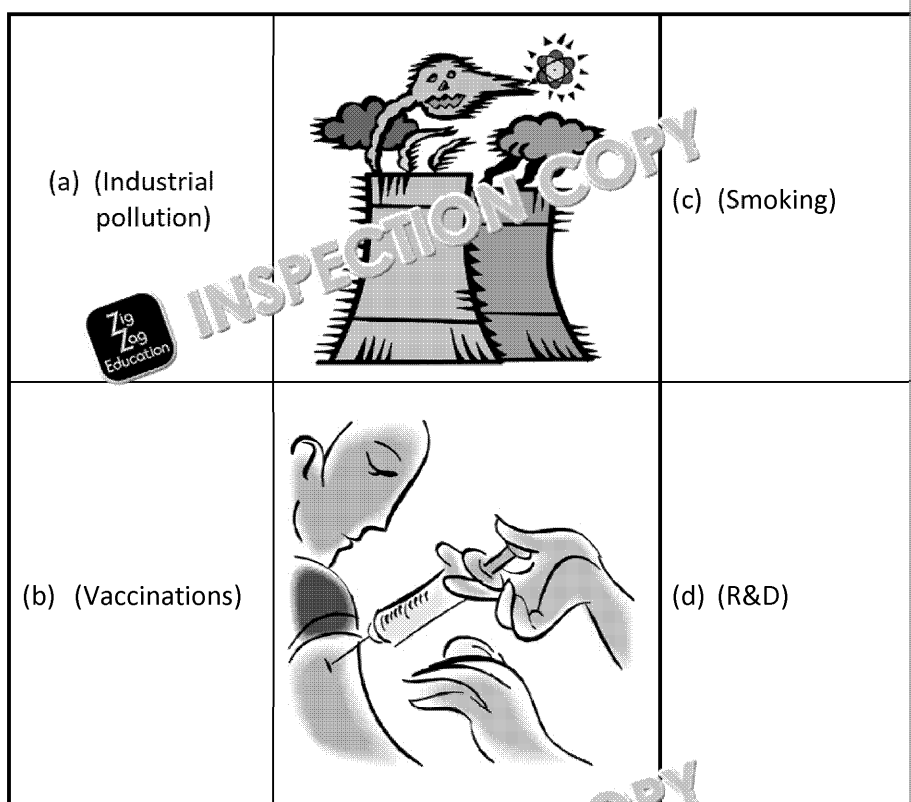


## Topic Test 1.3a Market Failure and Externalities (1.3.1–2)

- What is meant by market failure?
- If market failure occurs, will production be efficient or inefficient? Why?
- Market failure results in:
  - The over-production of certain products.
  - The under-production of certain products.
  - The over-consumption of some products and under-consumption of others.
  - All of the above.

Tourists to the UK's national parks tend to leave more than just their footprints in the parks. They intentionally or accidentally, leave behind all sorts of waste – from plastic food containers to soiled nappies. Litter is unsightly, and it ruins other people's enjoyment of the beautiful countryside the UK has to offer. It's easy to think that a single piece of litter is not a significant problem, but if everyone did this, it would quickly turn our national parks into large-scale rubbish dumps.

- Illustrate, and explain, how leaving litter behind can cause a market failure.
- Identify which type of externality each of the following images represents.



- Using information from the extract below and a diagram, explain the externalities of Samsung's investment in training.

Imagine that Samsung, the Korean electronics manufacturer – enters a region in the UK. Samsung provides technical training for those that wish to specialise in highly skilled work. Samsung's investment in education and training has advantages for other manufacturers in the region as they're able to employ pre-trained workers from Samsung. Moreover, Samsung's training has far-reaching benefits for society as a whole because a more productive workforce contributes to economic growth and social cohesion.

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7. 'Marginal private cost' (MPC) refers to which of the following?
- A Incremental change in an individual's total cost arising from their production of an additional unit of something.
  - B Incremental change in a group of individuals' total cost arising from their consumption of an additional unit of something.
  - C Incremental change in the total cost to society arising from the production of an additional unit of something.
  - D Incremental change in an individual's total benefit arising from their production of something.
8. If an individual really enjoys consuming stone-baked pizzas, what would be the private marginal benefit of consuming one more pizza?
9. What is meant by 'marginal social cost' (MSC)?
10. What is meant by 'marginal social benefit' (MSB)?
11. 'Externalities' refers to which of the following?
- A The costs and benefits that directly affect those involved in an economic transaction.
  - B Only the benefits that affect a third party as the result of an economic transaction.
  - C Only the costs that affect a third party as the result of an economic transaction.
  - D The costs or benefits that affect an unrelated third party as the result of an economic transaction.
12. Table 1 shows information on the market for alcoholic drinks – e.g. bottles of beer.

Quantity consumed (daily)	MPB	MSC
100,000	48	92
200,000	44	88
300,000	40	84
400,000	36	80
500,000	32	76
600,000	28	72
700,000	24	68
800,000	20	64

- (a) What would be the competitive free-market equilibrium level of output?
- (b) What would be the level of output at which there would be no market failure?
- (c) What is the difference between the free-market equilibrium and the optimal level of output?
- (d) By how much does marginal private benefit exceed marginal social benefit at the free-market equilibrium?
- (e) Explain why the marginal private benefit of alcohol consumption exceeds marginal social benefit.
- (f) Draw a graph to illustrate the diagram for this type of externality.
- (g) Suggest one method that the government could use to correct this market failure.

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## Topic Test 1.3b Public Goods and Information Gaps (1.3)

- Asymmetric information refers to which of the following?
  - A situation in which market participants have access to exactly the same information
  - A situation in which a market participant has access to information about the present but not the future
  - A situation that arises whenever there is an imbalance of information between two parties to an economic transaction – that is, one party to a transaction has more, or better, information than the other
  - A situation in which access to information varies according to one's geographical location
- What is meant by the term 'information hazard'?
- 'Excludability' refers to which of the following concepts?
  - It is possible to prevent people that haven't paid for the good from consuming it.
  - It is impossible for two individuals to consume the good simultaneously.
  - It is possible to reject the consumption of the good when it is provided.
  - It is possible for two individuals to consume the good simultaneously.
- What is meant by the non-rivalry of a public good?
- If something is non-rejectable, what is true of this type of good?
  - State **two** examples of a good that is non-rejectable.
- Identify which of the following are public goods.

(a)	Cinemas
(b)	Healthcare
(c)	Air
(d)	Bananas
(e)	Lighthouses
(f)	Timber
(g)	Fireworks
(h)	Electricity

- Explain the reason that a public good exhibits zero marginal cost once provided.
- Assess how the existence of a public good creates a market failure.

It should be of no surprise that national defence is an important talking point in the news. You may hear of measures that are being undertaken by governments to improve the security of the country. In the US, the intelligence organisation the NSA, for instance, is a controversial agency that monitors communications for information on the communication of American citizens in order to protect against threats to national security. Trident, in the UK, is a nuclear submarine defence system that some people believe is necessary for protecting the UK. However, systems for national defence are public goods in the sense that access to defence by one individual doesn't prevent another from being simultaneously defended. Moreover, people don't have a choice in whether they're defended or not once a defence system is in place. Of course, people can object to government spending on national defence, but this is different from the good itself. Finally, it's impossible to exclude certain individuals from the defence system. If the defence system prevents attacks on a national scale then people are defended, whether they've paid into the system or not. It would not be credible for a government to defend certain individuals in society.

- Evaluate the case for government provision of a national defence system.

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## Topic Test 1.4 Government Intervention

- What is the rationale for government intervention in markets?
- Identify a potential government intervention method that could be effective following scenarios.

	Scenario
(a)	Fossil-fuel-powered cars and vans were a necessity in past decades, but that means that fossil-fuel-powered vehicles are affordable and less environmentally friendly than their electric counterparts. However, less people are purchasing electric vehicles than the government had hoped.
(b)	Infrastructure is essential to the functioning of any economy. Without transportation networks, we would only be able to purchase things that are close to one's home. However, it is difficult for private firms to recover the costs of certain transportation networks because they often function similarly to public goods.
(c)	Agricultural commodities tend to fluctuate in price according to the weather. If much of a crop is harvested, there will be an excess of supply and the price will be less than expected, and vice versa. However, farmers' unpredictable prices of their crops leads them to delay investments that could improve their productivity.
(d)	In the second half of the twentieth century, many Asian economies opened up to international trade and have seen dramatic increases in their rates of GDP growth. The macroeconomy is generally performing well in these Asian countries, but the living standards are low. In Bangladesh, for instance, garment workers are paid nominal wages for their labour. In Bangladesh, for instance, garment workers are paid about £25 per month, but their living costs tend to be about £45 per month.
(e)	Weapons are instruments of death. While it is morally acceptable for some people to have access to weapons, weapons in the hands of the wrong people are problematic. In 1966, Charles Whitman climbed to the top of the University of Texas Tower and shot innocent students with a high-powered sniper rifle, killing 14 people. Since that incident there have been numerous high-school and university shootings in the US and the country's homicide rate is the highest of any developed country.
(f)	Consumers, unaware of the serious health risks of consuming agricultural products treated with synthetic pesticides, have been over-consuming these products. In the UK, cancer rates are increasing in the UK.

- Explain how tradable pollution permits can overcome environmental market failure.
- Explain **one** advantage and **one** disadvantage of using tradable pollution permits to address a market failure.

Pollution has reached a record high in the UK. The UK government feels that there is a market failure in the renewable energy sources. Households could benefit from installing solar panels but the high cost could bring down the cost of their electricity bills in an environment where the price of electricity is continually increasing tariffs. However, there are external benefits of households installing solar panels including reductions in pollution and sustainability for future generations. The UK government gives cash-in-hand subsidies for households that wish to install solar panels on their roofs.

- Identify the market failure that is outlined in the extract.
  - Analyse the likely effect of the government's intervention on the market.
  - What is the opportunity cost of the government's intervention?
  - Identify an alternative way the government could intervene to increase the use of renewable energy sources.
- What is meant by 'government failure'?

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7. Identify and explain **three** possible causes of government failure.
8. 'Alcoholism has negative effects on society. Therefore, the government should increase the price per unit of alcohol.'

Evaluate the effectiveness of minimum unit prices as a method to counteract



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# Answers

## Topic Test 1.1a: The Nature of Economics: The Basic Economics

1. **B** – Economists make assumptions in order to simplify their models. It would be impossible to take into account all the different factors that could affect an economic model and, even if they could, the model would be constantly changing. Therefore, instead of taking into account everything, economists make assumptions that are *generally* true, and can build models of the economy that are true on average.

[1 mark for correct response]

2. ‘Ceteris paribus’ is a Latin phrase that translates as ‘other things being equal’ or ‘all else being equal’. It is almost impossible for economists to analyse a specific change in a macroeconomic environment without having to consider that other factors could also be changing. Therefore, in order to isolate the effect of a single factor, economists tend to adopt the ceteris paribus assumption – e.g. if investment increases, aggregate demand will increase, *ceteris paribus*.

[2 marks for a clear explanation of the significance of the ceteris paribus assumption; 1 mark for an explanation that is less clear but which conveys the general meaning]

3. A ‘social’ science is an academic discipline which focuses on the scientific study of human behaviour and the relationships between individuals and society.

[2 marks for a clear explanation of what is meant by a ‘social science’; 1 mark for an explanation that is less clear but which conveys the general meaning]

4. A ‘natural’ scientist is able to conduct experiments in order to test their hypotheses. An economist is unable to conduct experiments. It would not be possible for an economist to change a factor and observe its effect on the economy. Instead, an economist creates a model and tests changes in the model.

[2 marks for a clear explanation of the difference between an economist and a natural scientist; 1 mark for an explanation that is less clear but which conveys the general meaning]

5. The government’s policy decision to pursue an inflation rate of 2.0% is an example of a positive statement and involves an implicit value judgement of what the UK’s inflation rate should be.

[2 marks for a clear explanation of how the government’s policy involves a value judgement; 1 mark for an explanation that is less clear but which conveys the general meaning]

6. **A** – Only ‘A’ is an example of a positive statement because it is a testable statement. Statements B, C and D involve some value judgements about how things ought to be and so are normative statements.

[1 mark for correct answer]

7. The ‘economic problem’ refers to the situation that arises in which an economy’s resources are insufficient in being able to satisfy the *infinite* number of wants of economic agents. This is referred to as the problem of ‘scarcity’.

[2 marks for clear explanation of the economic problem – answer should include the idea of unlimited wants and scarce resources, whether referring explicitly or implicitly to scarcity]

8. **(A)** Food, **(D)** Shelter and **(F)** Clothing are considered to be basic human ‘needs’ because they are items that are necessary for a comfortable life. **(B)** and **(C)** are considered ‘wants’ because they are items that are not necessary for a comfortable life but are things that one might desire.

[1 mark for each item identified correctly up to a total of 3 marks]

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9. Scarcity forces economic agents to make choices because the nature of having finite set of *wants* can be satisfied. Necessarily, using our resources for the consumption of one thing using those same resources on something else. Agents consider their limited resource basket of goods they would like to consume. Individuals, therefore, must prioritise what is important to them first – often their ‘needs’ – and then make choices about which to satisfy. If scarcity did not exist then people would never be forced to make choices about production. Economics wouldn’t exist as a subject.

*[2 marks for a clear explanation of how scarcity forces choices to be made – i.e. in a limited set of resources]*

10. An ‘opportunity cost’ is the value of the *next-best alternative forgone* arising from a course of action. When we decide to pursue some action – e.g. studying Economics – the benefit that could have arisen from all other possible decisions – e.g. studying Maths and Science – but also other options such as seeking employment instead. A decision is only the benefit that would have arisen from the ‘next-best’ option.

*[2 marks for clear definition of an opportunity cost – the idea of a value placed on the next best alternative, central to the definition, and the idea that all decisions involve a trade-off but only one to an opportunity cost]*

11. 1. What should be produced?  
2. How should it be produced?  
3. For whom should it be produced?

*[1 mark per correct response]*

12. (a) The four factors of production are: *land, labour, capital, and entrepreneurship*

*[1 mark for each correctly identified factor of production]*

- (b) Land’s reward is rent – the return for ownership of land and natural resources. Labour’s reward is wages – the return on time invested in productive activity. Capital’s reward is interest – the return on investment. Finally, entrepreneurship’s reward is profit – the return for risk.

*[1 mark for each correctly identified reward to the factors of production]*

13. ‘Renewable’ resources are resources that are replaceable over time. In the context of energy, renewable resources can include geothermal, solar, wind and tidal energy. Note that renewable resources can take some time to be replaced (e.g. timber), they do not need to be in infinite supply. ‘Non-renewable’ resources are those that cannot be replaced once consumed. Non-renewable resources are fossil fuels and nuclear energy.

*[2 marks for a clear distinction between renewable and non-renewable resources; 1 mark for each, or less clear but which conveys the general concept]*

14. The production possibility curve (PPC), or frontier (PPF), is a graphical representation of the maximum combination of goods and services (e.g. consumer and capital goods, apples and oranges) that can be produced within a given time period by employing an economy’s fixed factors of production.

*[2 marks for any appropriate definition of the PPF]*

15. (a) – Capital  
(b) – Consumption  
(c) – Capital

Note that capital goods are the goods that are used in the production process – usually durable goods such as machinery, plant and equipment. Conversely, consumption goods are produced for direct consumption.

*[1 mark per correct response]*

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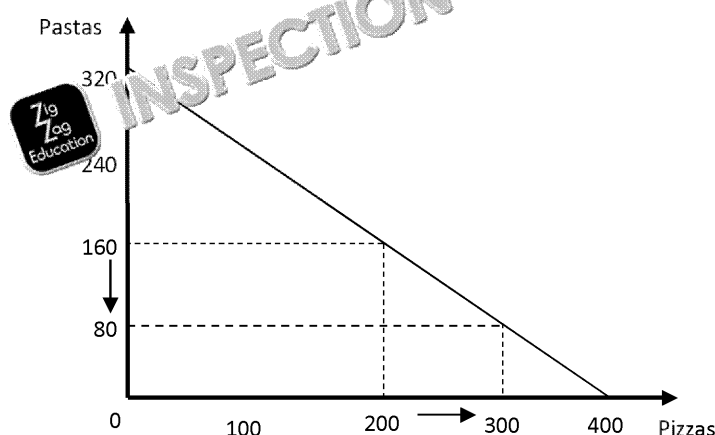




16. A, B, and C are all productively efficient because they are all situated on the production possibility frontier (PPF). Remember, the PPF shows the combination of two products that could be produced if the economy is *fully* and *efficiently* employed. Therefore, A, B and C are productively efficient. Whether something is allocatively efficient depends ultimately on whether the combination of goods matches people's preferences. Thus, either A, B or C could be allocatively efficient, but this depends on the judgements about the desirability of the combination of output.

[2 marks for a clear explanation of the difference between productive and allocative efficiency; 1 mark for an explanation that is less clear but which conveys the general meaning]

17. (a)



[1 mark for correctly labelled axes and values, 1 mark for linear PPF, and 1 mark for showing a production trade-off is not one-for-one. Note that students can label the y-axis 'Pizzas' and the x-axis 'Pastas' (vice versa), but the slope must show the relative productive capacity in favour of pizzas]

- (b) (i) Scarcity is represented via any point *outside* of the PPF for this economy – this represents the production combinations that would be possible given unlimited resources, and so points outside of this curve represent the unlimited combinations of goods that are not possible given limited resources.
- (ii) Productive efficiency is represented via any point *along* the PPF – this is because the PPF shows the 'maximum combinations' of output. If the economy is not on the PPF, it is not using all its available resources; if it is on the PPF, it is using all its resources efficiently.
- (iii) Inefficiency is represented via any point *inside* the PPF – this is because if the economy is inside the PPF, it is possible to produce more of one good without sacrificing any of the other goods, meaning resources are being inefficiently under-utilised.

[1 mark each for correctly identifying these concepts on the PPF]

- (c) 80 pastas – rationale: If the fictional economy decided to produce 100 more pizzas, it would have to move along the PPF. The movement along the PPF as the economy is now using more of its resources involves a *trade-off* between the production of pastas and the production of pizzas. To produce 100 more pizzas, the benefit of producing 80 pastas must be forgone. Therefore, the opportunity cost of producing an additional 100 pizzas is 80 pastas.

[1 mark for correct answer]

18. The PPF shifts whenever the productive potential of an economy improves. If an economy could increase the amount of output given the same inputs, we would see the PPF shift outwards. For example, if a country found a new technology for producing capital goods, the PPF could shift outwards. Likewise, the PPF could shift inwards – e.g. if a country found a new technology for producing consumer goods. However, anything that damages the productive potential of an economy will cause the PPF to shift inward – e.g. a civil war, or natural disaster.

[1 mark for identifying factors causing an outward shift in the PPF – anything that increases the productive potential of an economy; 1 mark for identifying factors causing the PPF to shift inward – anything that decreases the productive potential of an economy]

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## Topic Test 1.1b: Nature of Economics: Solving the Economic Problem

1. Specialisation occurs when an individual, business, or nation state concentrates the production of a single, or limited number, of good(s).

[1 mark for correct answer]

2. From Table 1 it is immediately obvious that Adam is much better at producing both goods. In fact, if Adam dedicated himself to producing vans he could make 36 per annum, whereas if he dedicated his production to cars then he could also produce 36 per annum, which is his maximum output.

It might seem like there is little reason for Adam to trade with Karl given that Adam can produce both vans and cars. However, this doesn't mean that there cannot be trade between these individuals.

It's important to note that Adam can only specialise in one *or* the other, and focus on the thing that he is better at. That Adam necessarily has to sacrifice some cars. It would be in everyone's best interests to specialise in the thing that they are better at.

If Adam wants to produce one more car, he must sacrifice one van, and *vice versa* if he wants to produce one more van he must sacrifice one car. Adam's opportunity cost (in terms of vans) of producing cars is lower than that of Karl's. Karl's opportunity cost (in terms of cars) of producing vans is lower than that of Adam's. Karl should specialise in producing vans because his opportunity cost is lower.

If Adam and Karl specialise and trade, they will both be better off – producing 36 of each good. This is a better situation without specialisation and trade because *more* of both goods can be produced. [1 mark for identifying that both Adam and Karl will be better off with specialisation and trade, 1 mark for explanation]

3. Primarily, in a barter economy trade *only* occurs if there is a *double coincidence of wants* – if each individual is offering the other individual something that they want. Money is a standardised medium of exchange that serves as an intermediary for trade. Money solves the problem of the double coincidence of wants which further facilitates trade because in a barter system it wouldn't be possible to trade a car for five chickens.

Note the number of different responses that focus on the functions (and/or characteristics) of money. However, students must reflect on how these functions facilitate trade.

[2 marks for a clear explanation of how money facilitates trade compared to a barter system, 1 mark for an explanation that is less clear but which conveys the general meaning]

4. Adam Smith's observation was that through specialisation and *division of labour*, more can be produced than if workers hadn't specialised.

Specialisation improves productivity because workers are able to practise and become more efficient at a few tasks rather than *all* tasks. Specialised workers might also develop specialised tools. There is also *no* time wasted moving between different parts of the production process. The division of labour can allow more to be produced given limited factor inputs had workers not specialised.

It is clear, therefore, that specialisation can address the basic economic problem of how to satisfy a *greater* number of infinite wants – (e.g. specialisation in a pin factory where more than 100 pins being made using the same factor inputs).

However, specialisation can also result in lower productivity for a number of reasons. Workers become bored and disinterested and their productivity would decline as a result. Secondly, if there is a problem at one stage of production it could prevent any further production. Therefore, specialisation could also exacerbate the basic economic problem if not managed properly.

[Maximum 4 marks. 1 mark for identifying the argument that specialisation improves productivity, 1 mark for a clear explanation including an argument against the first point]

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5. Market economies allocate resources via the price mechanism. Consumers signal their willingness to purchase (or not purchase) an item at the prevailing price. Producers receive this information and respond to these price signals by expanding or contracting output accordingly. Producers choose the factors of production and can pursue whichever productive activities they choose, based on the preferences of consumers and the chance of profitability. While the government has no influence over the allocation of resources, it provides a legal framework and institutions that ensure the smooth operation of markets. This includes the *property rights* and the court of law. Producers, therefore, are still subject to this legal framework. Producers maximise profit through responsive production. Resources in such a *laissez-faire* system are allocated according to the 'invisible hand' of the market. Allocation in a market economy model is also referred to as capitalism. Ultimately, resources are said to be allocated efficiently through the market mechanism.



[1 mark for recognising resources are allocated through prices and/or the market mechanism, 2 marks for explaining the mechanism]

6. Centrally planned economies are economic systems in which the state allocates resources. In these systems, the government makes economic decisions on a number of individual matters. In a centrally planned economy, the government owns the factors of production and it controls the production and distribution of goods and services. Normative decisions need to be made about how best to allocate resources – i.e. decisions must be made about *what, how* and *for whom* by the government.

[1 mark for recognising resources are allocated via the state, up to 3 marks for explaining the mechanism]

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	Market Economy	Central Planning
<b>Advantages</b> 	<ul style="list-style-type: none"> <li>• Competition between businesses leads to cost-efficiency gains as firms have an incentive to cut costs and receive higher profit. It encourages the maximisation of economic agents' objectives.</li> <li>• Innovation is encouraged to maintain competitive – an important macro-economic effect.</li> <li>• A large choice of consumer products available.</li> <li>• Individuals are <i>free</i> to pursue their own self-interest.</li> <li>• Goods are produced according to consumer preference – this means that consumers should be more satisfied in a market economy.</li> </ul>	<ul style="list-style-type: none"> <li>• Equality is promoted through government controls production and distribution. Government controls the relationship between the market and the policy that brings about change.</li> <li>• Government controls the economy.</li> <li>• It overcomes the limitations of the private individual process – e.g. natural resources.</li> </ul>
<b>Disadvantages</b> 	<ul style="list-style-type: none"> <li>• Market failure can occur if markets are left unfettered; this could include inequality, uncompetitive markets, environmental damage, etc.</li> <li>• Exploitation of workers – if it occurs if businesses try to take cost-cutting savings – e.g. by not providing adequate working conditions.</li> <li>• Members of society who are not considered 'productive' (e.g. the elderly and the disabled) are not useful to a market economy and these people could find themselves in situations of poverty.</li> </ul>	<ul style="list-style-type: none"> <li>• Logistically, it is difficult to predict change in demand for whether item etc. Allocative efficiency is not achieved in such predictions at any time – e.g. because of corruption.</li> <li>• Corruption is a problem that tends to corrupt the system absolutely'.</li> <li>• It might also be argued that resources are allocated inefficiently because of normative judgments about what they are <i>not</i> allocated to.</li> <li>• It suppresses innovation as firms have no incentive to do this because any profits are transferred from the private sector to the state (i.e. the public sector). Inefficient production in a centrally planned economy.</li> <li>• It can create a dependency on the government for basic needs to be met. For example, grain needs to be allocated to receive 100 tonnes of grain, the target will still be met.</li> </ul>

[Maximum 8 marks. Students should refer to these advantages and disadvantages in their responses. For example, North Korea has a serious logistical issue allocating food resources (for example, for the military); investment is falling short of what is required for economic growth; lack of development in the private sector. The list is non-exhaustive and marks should be awarded for relevant responses.]

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## Topic Test 1.2a How Markets Work: Demand (1.2.1–1.2.2)

1. Maximisation refers to the process through which economic agents attempt to meet their objectives. In other words, they attempt to get *as much* of their objective as possible. Consumers seek to maximise their utility, or satisfaction. Businesses tend to be profit-maximisers. Generally, the economic objective is their primary focus – often this is economic growth, but it could also be environmental standards, or any other indicator of economic welfare, etc.

[1 mark for correct definition; 1 mark for appropriate example. Note: examples should be based on traditional economic theory. It would not be appropriate, for instance, to suggest that a business's objective is customer satisfaction, etc.]

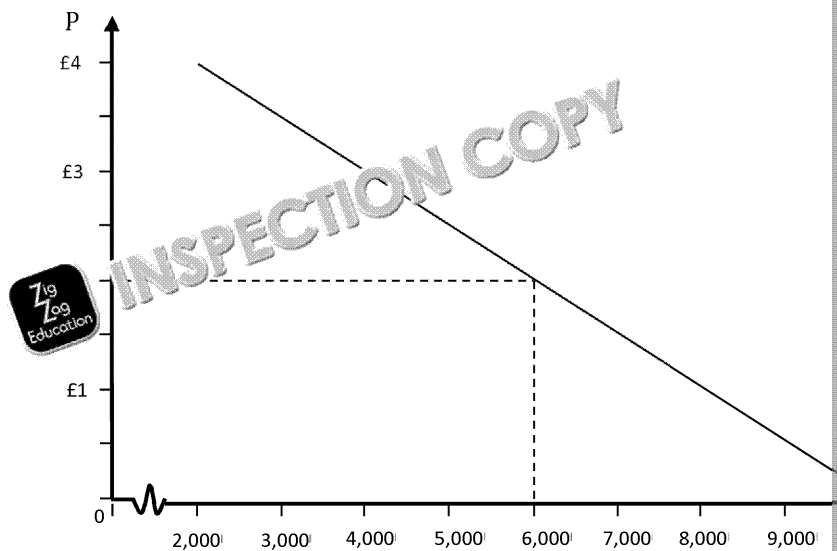
2. Demand is an economic concept that refers to the quantity of a specific item that consumers are willing and able to purchase at a range of prices during a specific time period.

[1 mark for an appropriate definition of demand. Note, responses must focus on correlation between price and quantity]

3. Individual demand is an individual consumer's willingness and ability to purchase a specific quantity of any given price. Market demand, however, is the total quantity of a product that all consumers within a market at any given price. The difference between individual and market demand is comprised of all individual demand schedules.

[1 mark for outlining individual and market demand, 1 mark for highlighting the difference]

4. (a)



[1 mark for correctly labelled axes and demand curve; 1 mark for downward-sloping demand curve passing through the coordinates in Table 1]

$$(b) \quad \% \text{ Change in } Q_D = \frac{\text{Original } Q_D}{\text{New } Q_D} \times 100 = \frac{4,000}{8,000} \times 100 = 50\%$$

[1 mark for correct answer; 1 additional mark for working]

5. Intuitively, it seems obvious that demand should be downward-sloping. Whenever the price of a good falls, we would expect the quantity demanded of that item to be low, and vice versa. Hence, there is an inverse relationship between price and quantity demanded. Why? First, demand is subject to a 'real income' effect. When the price of a good falls, the 'real' income a consumer would have after purchasing that good increases. Therefore, we would expect demand to be higher at lower prices. Second, there is a 'substitution' effect. Increases in the price of a certain good would encourage consumers to switch to other products. Thus, demand for an item is lower the higher its price.

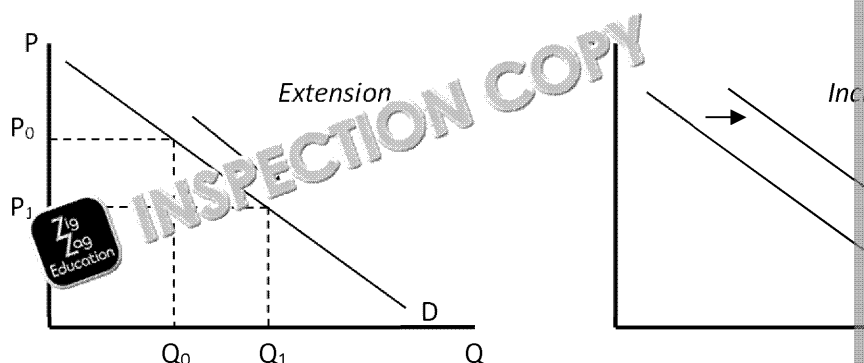
[1 mark for stating each effect that explains the inverse relationship between price and quantity demanded (real income effect and substitution effect) and 1 mark for explanation of each]

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6. Extension of demand is a movement *along* the demand curve in the positive direction. A movement along the demand curve is observable as consumers respond positively to a change in the price of the good. Demand refers to an entire *shift* in the demand curve in the positive direction – this is caused by factors other than the good's price (e.g. changes in preference, changes in the price of other goods, changes in consumer income), leading to more being sold at the same price (other things equal).



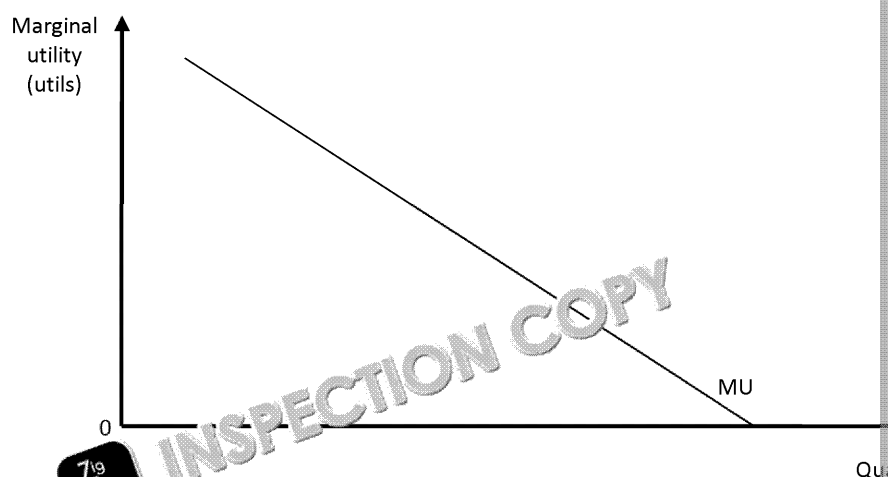
[1 mark for correctly matching extension to a movement along the curve, and 1 mark for a shift in the demand curve; 1 additional mark for explanation of what this means for price and quantity. Changes in price cause a shift in either direction are appropriate, as well as a diagram.]

7. Possible factors shifting the demand curve for Kopi Luwak coffee could include a change in the price of the good (it is likely to be a *normal* good), an increase in the price of a substitute good (e.g. the price of a complement good (e.g. milk), and a general shift in consumer preference (because of advertising, due to a health trend, etc.).

[Maximum 3 marks. 1 mark for each suitable factor that could shift the demand curve. Changes in price cause a shift in either direction are appropriate. Do not award marks for changes in the price of the good.]

8. Marginal utility is defined as the additional utility gained from consuming an extra unit of a good. The law of diminishing utility states that each additional unit of consumption of an item brings less additional utility than the previous unit. It seems intuitive that this is the case. If you purchase an automobile, the utility, or satisfaction, would increase dramatically, far more than if you purchase a second car. However, purchasing an additional unit is unlikely to increase utility by as much as the first unit because the individual has already reaped a lot of benefit from the first car. Their collection isn't all that useful. Importantly, after a certain number of cars the utility *decrease* – e.g. because it begins to become problematic storing a large number of cars.

Graphically, this relationship can be represented as follows:



Marginal utility theory can explain the downward-sloping nature of the demand curve. As the quantity of a good consumed increases, individuals will be prepared to pay *less* for an additional unit of consumption if the marginal utility of that unit is lower than the previous unit (diminishing marginal utility).

[2 marks for a clear explanation of marginal utility (or 1 mark for an explanation of the general concept); and up to 2 marks for a correct diagram]

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## Topic Test 1.2b How Markets Work: Elasticities of Demand

1. (a) Price elasticity of demand (PED) is the sensitivity, or responsiveness, of demand to a change in a service's price level.

[2 marks for a clear explanation of PED; 1 mark for an explanation that is less clear but conveys the general concept (e.g. slightly incorrect terminology used) correctly drawn and labelled diagram]

(b) 
$$PED = \frac{\% \text{ Change in the Quantity Demanded}}{\% \text{ Change in the Price}}$$

[2 marks for correct formula for PED; award only 1 mark if formula is defined as percentage change in quantity demanded divided by percentage change in price; no marks if numerator and denominator are opposite to each other]

2. (a) 
$$C = \frac{\% \text{ Change in the Quantity Demanded}}{\% \text{ Change in the Price}} = \frac{-10\%}{40\%} = -0.25$$

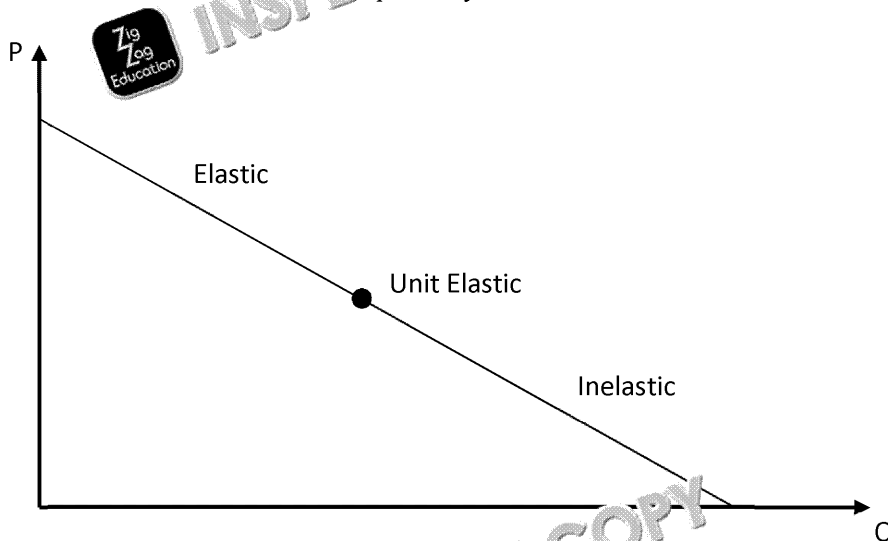
Therefore, the PED of petrol is inelastic. PED is *inelastic* if the calculated value (in absolute terms), it is perfectly inelastic if PED=0. Conversely, PED is elastic if PED=1.

[1 mark for correct response]

- (b) A – Increase.

[1 mark for correct response]

3. PED varies along a straight line demand curve because its calculation involves price and quantity. Imagine that the nominal starting price of an item is high. If the price falls, the nominal change would constitute a small percentage change relative to the starting price, but a large percentage change in quantity demanded. Hence, in the upper half of the demand curve demand is said to be elastic. It is true for the bottom half of the demand curve – i.e. it is inelastic. Interestingly, at the midpoint of the demand curve demand is unitary elastic. When demand intersects the y-axis, demand is perfectly elastic. When demand intersects the x-axis, demand is perfectly inelastic.



\*Note that this theory is important in understanding the relationship between PED and revenue. If PED is elastic, firms can increase their revenue by reducing price and compensating for the decrease in price with a large increase in the quantity of the product that is sold. When PED is unit elastic the effect of a price change on revenue is zero. If PED is inelastic, raising the price will lead to a proportionately smaller fall in the quantity demanded, and reducing the price will lead to a proportionately larger increase in the quantity demanded.

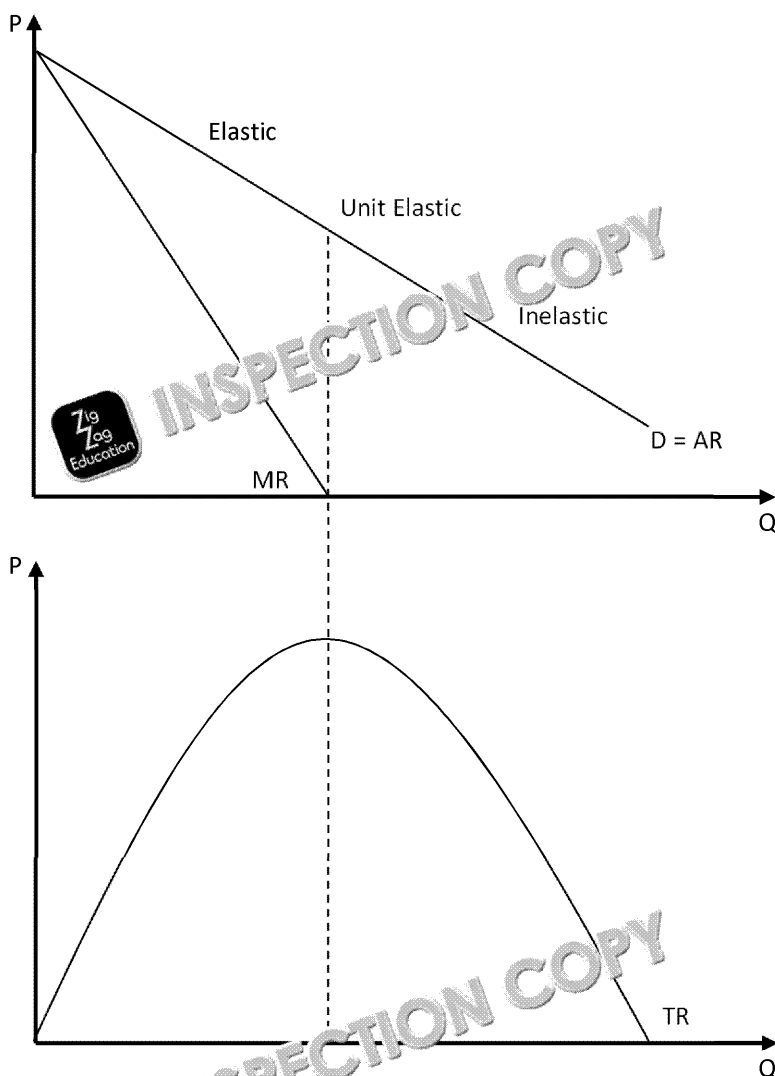
[2 marks for a clear explanation of why PED varies along a straight line demand curve; 1 mark for a less clear but conveys the general concept (e.g. slightly incorrect terminology used) correctly drawn and labelled diagram]

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4.



Notice that the price elasticity of demand varies along a straight line demand curve. In the upper half of the demand curve the price is *high*, while the quantity demanded is *low*, so a *percentage* terms, but the associated change in quantity demanded would be large. The lower half of the demand curve is elastic, and the bottom half inelastic. Note that at the midpoint of the curve the price elasticity of demand will be *unit-elastic*.

If demand is price elastic, the firm can reduce its price but enjoy a disproportionate increase in revenue. If demand is price inelastic, the firm can increase its price and increase its revenue. However, once demand is unit elastic, an increase or decrease in price will decrease total revenue. Hence, total revenue is maximised when price and quantity demanded are at the point of unit elasticity. Notice that this is also the point at which marginal revenue is zero. Any further increase in price would lead to *negative* marginal revenue and so total revenue would decrease, and any further decrease in price would also reduce total revenue because the marginal revenue of increasing price is *negative*.

[Maximum 4 marks. 2 marks for explaining the relationship between a firm's PED and its total revenue, and 2 marks for a diagram.]

5. PED is influenced by...

- **Availability of Substitutes:** If there are suitable substitutes available for a product, demand is more elastic. An explanation of this relationship is that an increase in the price of a product encourages consumers to switch their consumption away from it towards the relatively cheaper substitutes. However, the *magnitude* of elasticity will vary depending on the nature of the substitutes.
- **Necessity:** If a product is a necessity then an increase in the price of the item will not reduce the demand. Therefore, items that are not thought of as necessities (e.g. food) are more sensitive to changes in price because there are alternatives available.

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- *Proportion of Income Devoted to the Good:* If the cost of an item constitutes a high overall expenditure, then a small increase in its price is likely to have a large effect on the income effect of consumption – that is, items that take up a larger share of our disposable income.
- *Time Period:* In the short-run, demand tends to be inelastic because people have commitments to consumption, and so changes in price don't tend to affect demand much. In the long-run, people have time to change their patterns of consumption in response to price changes.

[1 mark each for identify an appropriate factor; 1 mark each for suitable explanation]

6. The UK government's sugar tax can be seen as a leftward shift in the supply curve. When the price of a firm's costs are likely to be higher than before, reducing profitability and, consequently, production. Graphically this has been represented by the movement of  $S_1$  in the leftward direction to  $S_2$ . The PED of fast-food for poorer households is more inelastic (as shown in diagram 1). Therefore, the demand for poor households can be represented by a relatively steep demand curve,  $D_{\text{Poor}}$ . When PED is relatively inelastic, a small increase in price leads to only a small fall in quantity demanded. Conversely, if we were to draw the demand curve for affluent households, we would see that the increase in price has a large effect on reducing quantity demanded. Consequently, we can conclude that taxes are less effective when the PED is relatively inelastic. Demand is less than proportional to the increase in price. In this case, the government's objective of obesity reduction in the households that most need obesity to be reduced is less likely to be achieved. The elasticity for poorer households is thought to be based on a perception that health is more important than price. It may be argued that in the long term the elasticity for poorer households could increase as prices and consumer perceptions of those prices change.

Diagram 1

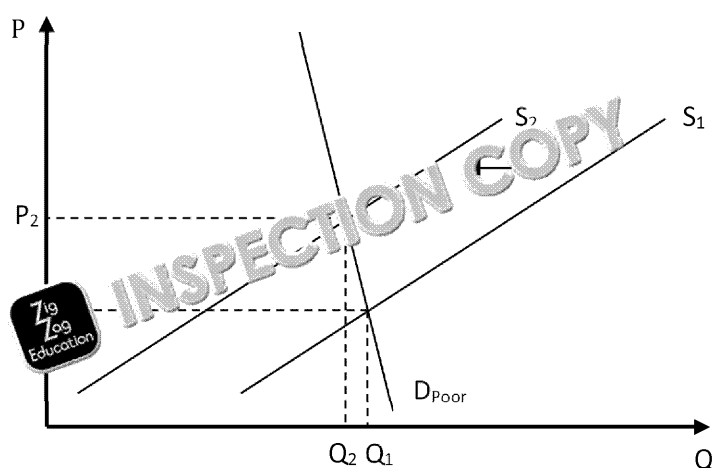
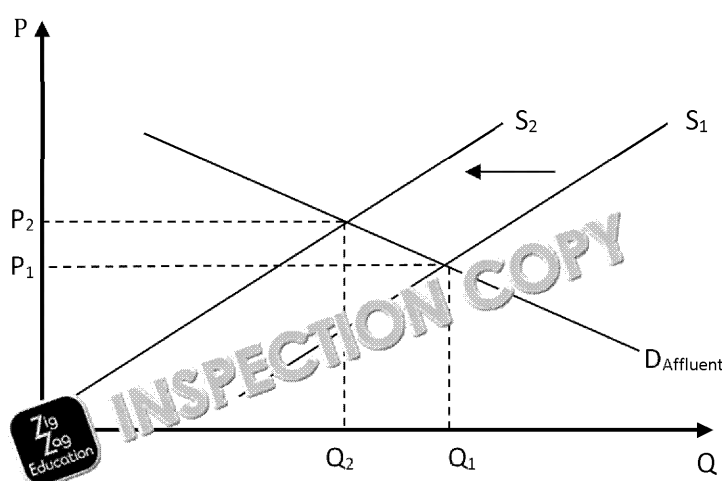


Diagram 2



[Maximum 6 marks. 2 marks for at least one correctly labelled diagram; 4 marks for suitable explanation and evaluative comments, supporting a rounded conclusion that pertains directly to the question]

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7. (a) Income elasticity of demand (YED) is the sensitivity, or responsiveness, of demand to a change in consumer income.

*[2 marks for a clear explanation of YED; 1 mark for an explanation that is less general meaning]*

(b) 
$$YED = \frac{\% \text{ Change in the Quantity Demanded}}{\% \text{ Change in Income}} = \frac{-60\%}{15\%} = -4.00$$
 (i.e. Spam is an 'inferior' good)

*[1 mark for correct answer; 1 mark for showing working]*

8. 'Inferior' goods are those goods for which YED is negative – that is, when incomes rise proportionately less than the quantity demanded. Inferior goods have  $YED < 0$ . Inferior goods, for instance, include second-hand goods. 'Normal' goods are goods that show a positive relationship between income and quantity demanded – most goods tend to be described as normal goods. Normal goods are the *opposite* of inferior goods and have  $YED > 0$ . 'Superior' goods are goods for which YED is strongly positive and greater than one. Superior goods are a special type of normal good for which  $YED > 1$ .

*[Up to 2 marks for an accurate description of an inferior, normal, and superior good; 1 mark for a comparison between these goods – e.g. by using values of YED, examples, etc.]*

9. (a) Public transport is an inferior good because its  $YED < 0$  (-0.50) – this makes it likely that consumers might choose more luxurious modes of transport (e.g. cars).

*[1 mark for correct response]*

- (b) Automobiles.  $YED = 2.98$  which is greater than the other products' values.

*[1 mark for correct response]*

- (c) Tobacco. YED is positive, therefore tobacco is a normal good.

*[1 mark for correct response]*

10. (a) Cross elasticity of demand (XED) is the sensitivity, or responsiveness, of demand for one good to a change in some other good or service's price level.

*[2 marks for a clear explanation of XED; 1 mark for an explanation that is less general meaning]*

(b) 
$$XED = \frac{\% \text{ Change in the Quantity Demanded of Good X}}{\% \text{ Change in the Price of Good Y}}$$

*[2 marks for correct formula for XED; award only 1 mark if formula is defined in terms of percentage change; no marks if numerator and denominator are opposite to each other]*

11. A – Coal and BBQs are said to be complements if they have an XED of -0.54. This means that a rise in the price of coal leads to a decrease in the consumption of BBQs. Note that this relationship is an option for the fuel for a BBQ.

*[1 mark for correct response]*

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## Topic Test 1.2c How Markets Work: Supply (1.2.4–1.2.5)

1. Movements along the supply curve are brought about by changes in price. Suppliers change by expanding or contracting output. If the price of an item falls, suppliers shift their supply curve (a contraction) and supply a smaller quantity of the item. Shift factors other than price – e.g. production costs, technology, the number of firms. Decreased supply is represented by an *inward* shift of the supply curve rather than an outward shift.

[1 mark for recognising that contractions can be brought about by changes in price; 1 decreases in the demand are brought about by non-price factors]

2.

(a)	<p>Given that the West Country orchard's business objective is profit maximisation, its cost structure will have an effect on the supply curve. Here the orchard is more efficient than the manual human labour used in the past. The effect of this technology is to reduce the unit costs of production by reducing labour in the West Country orchard shifts rightwards (outwards) – because the firm is now prepared to provide more at any given price.</p>
(b)	<p>Subsidies are grants from the government that are designed to increase production. A subsidy this essentially offsets their costs of production. Again, this means the West Country orchard will be able to provide a greater quantity of output at any given price. The orchard's supply curve will shift rightward (outwards). (Note, it shifts up the old and new supply curve is the amount of the subsidy.)</p>
(c)	<p>If the price of pears increases relative to the price of apples the West Country orchard will switch production to pears. This is because pears are currently more profitable than apples. Farming techniques for these agricultural products are more or less exact the same. If the price of a competitive good increases. (Note, an evaluation point here is that it takes a long time to grow a pear tree, so the West Country orchard are unlikely to switch production in the short-run.)</p>
(d)	<p>Increases in the National Living Wage constitute an increase in the costs of production for the orchard. Even if this firm does not hire anybody that is earning the National Living Wage, it still causes upward pressure on all wages. Whenever a business' costs increase, its supply curve shifts inward because it is less profitable to do so than before. Hence, the West Country orchard's supply curve would shift inward if this change occurred.</p>
(e)	<p>The use of bio-fuel made from by-products of the orchard's production process as an input on the orchard's supply curve could go either way. First, they might stop producing bio-fuel altogether and supply bio-fuel instead leading to an inward shift of the supply curve. Alternatively, they could also increase the production of apples and just sell their by-products to fuel production. It is ambiguous.</p>

[1 mark for identifying the direction of the shift; 2 additional marks for a strong explanation and a weaker argument that still conveys the correct meaning]

3. There is a lot of information in the extract that will affect the position of the supply curve for traditional Californian farmers' produce. First, the price of almonds has incentivised production from row crops to orchards. This is evidenced by the fact that the almond crop has increased from half a million pounds (lbs.) to approximately 2 billion pounds today. This would be reflected by a *leftward* shift in the traditional row crop's supply curve as the market decreases and shift production to the more profitable almond crop.

Moreover, there has been a drought in California for the past five years. Unfortunately, when there are droughts, row crops get allocated much water by the State because during that period, row crops are more profitable. Orchard trees, however, must be fed water regardless of the economic conditions. This means that row crops are allocated a large % of the entire State's water resources. Therefore, traditional row crops must spend more on purchasing water during these drought periods. This increases the costs of production for traditional farmers meaning at any given price for their produce they will supply less. Again, the supply curve has shifted left.

However, there is a little evidence that these farmers are getting more efficient. They are reducing costs by reducing purchases of excess inputs. This effect could (partially) offset the effect of the Californian drought. Therefore, the adoption of new technology will shift the supply curve rightward.

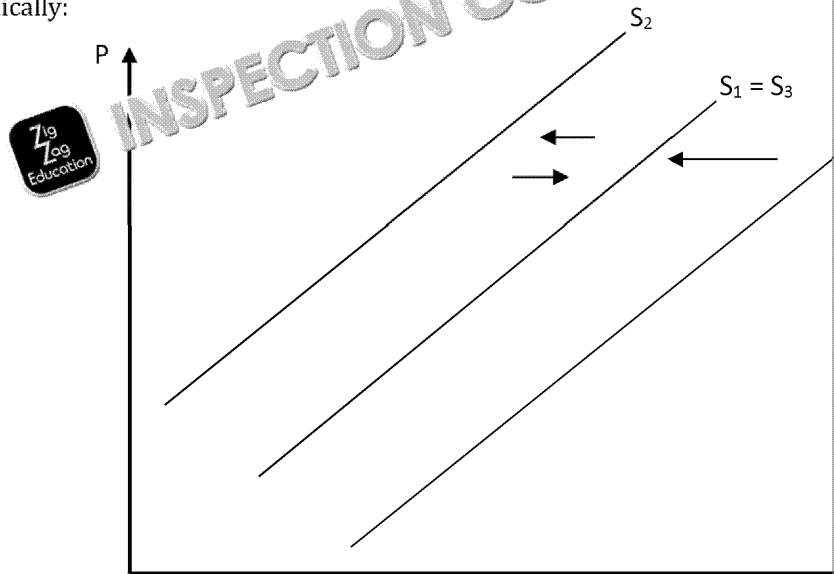
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right. The overall effect on the position of the supply curve will ultimately depend on whether the benefits of this technology outweigh the cost increases of the Californian drought.  $S_1$  represents the initial position of supply in the traditional produce market,  $S_2$  represents the position of the supply curve after the drought, while  $S_3$  is the movement after technology has been adopted. The diagram shows the supply curve moving in the rightward direction – the magnitude of the movement depends on the judgement. **In this case it has been drawn such as if the adoption of technology increases in the price of water.**

Graphically:



[2 marks the diagram, plus 2 additional marks for the linking explanation]

4. B – The supply of Picasso's paintings can be represented by a vertical line because regardless of the price offered, there can only be any more supplied to the market.

[1 mark for correct response]

5. (a) Price elasticity of supply (PES) is the sensitivity, or responsiveness, of supply to a change in the price level.

[2 marks for a clear explanation of PES; 1 mark for an explanation that is less general meaning]

- (b) 
$$PES = \frac{\% \text{ Change in the Quantity Supply}}{\% \text{ Change in the Price}}$$

[2 marks for correct formula for PES; award only 1 mark if formula is defined in terms of percentage change; no marks if numerator and denominator are opposite to each other]

6. A music streaming service would be almost perfectly elastic in the short-run. This is because when the service is set up, the provider will incur very few additional costs per unit, mainly fixed costs.

[1 mark for elastic; 1 mark for explanation]

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