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EDEXCEL INTERNATIONAL A LEVEL ECONOMICS: QUESTIONS BY TOPIC

Market failure (1.3.5)

International A Level Economics · Unit 1: Markets in action

62 questions · 441 marks · Mark schemes included
Past papers January 2019 - June 2025 · 6 specification sub-topics

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HOW TO USE THIS BOOKLET

Questions are grouped by specification sub-topic and run from the lowest to the highest mark tariff, then oldest paper first.

Click any row below to jump straight to that sub-topic or question.

On every question page, click ANSWER in the top-right corner to jump to its mark scheme; < QUESTION brings you back.

Whenever a question refers to an extract, figure or table, those exact pages are printed immediately before it ("extracts & data").

A gold bar in the left margin marks exactly where the question sits on the original page.

Diagrams, graphs, tables and data are printed exactly as they appear in the original papers.

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3. Q2	IAL Unit 1 October 2020	1	6
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22. Q12(d)	IAL Unit 1 June 2019	8	39
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30. Q12(e)	IAL Unit 1 October 2021	14	81
31. Q12(e)	IAL Unit 1 June 2023	14	87
32. Q12(e)	IAL Unit 1 October 2023	14	93
33. Q12(e)	IAL Unit 1 January 2025	14	99



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QUESTIONS

62 questions · 441 marks · 6 sub-topics

SUB-TOPIC 1.3.5.1

SOURCES OF MARKET FAILURE

Sub-topic 1.3.5.1 · 7 questions · 11 marks · lowest tariff first



SECTION A

Answer ALL questions in this section.

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

- 1 Statement 1:** In 2017 the Kenyan Government spent Sh172.5 billion on healthcare. This is 8% of its annual budget.

Statement 2: The African Union believes African countries should spend 15% of their annual budgets on healthcare.

Which **one** of the following best describes the two statements above?

- ☐ **A** Both statements are positive
- ☐ **B** Statement 1 is positive and statement 2 is normative
- ☐ **C** Both statements are normative
- ☐ **D** Statement 1 is normative and statement 2 is positive

(Total for Question 1 = 1 mark)

- 2** The Chinese Government introduced a carbon emissions trading scheme. The objective of this tradeable pollution permit scheme is to reduce carbon emissions by

- ☐ **A** forcing highly polluting firms to buy permits from low polluting firms
- ☐ **B** forcing low polluting firms to buy permits from highly polluting firms
- ☐ **C** paying subsidies to firms who manage to reduce their carbon emissions
- ☐ **D** taxing firms who pollute less than their allowance

(Total for Question 2 = 1 mark)

- 3** Which **one** of the following is an example of market failure?

- ☐ **A** Lower prices create an incentive for firms to switch production to more profitable activities
- ☐ **B** Excessive administrative costs are involved in meeting environmental regulations
- ☐ **C** Government provision of street lights that is greater than the social optimum output
- ☐ **D** Insured consumers take more risks in the knowledge that the insurer will pay any resulting costs

(Total for Question 3 = 1 mark)



SECTION A**Answer ALL questions in this section.**

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

1 Which **one** of the following will cause a movement along the demand curve in the market for rice?

- ☐ **A** An increase in the global population
- ☐ **B** An increase in real incomes
- ☐ **C** A decrease in the price of noodles
- ☐ **D** A decrease in the price of rice

(Total for Question 1 = 1 mark)

2 Which **one** of the following is an advantage of a free market economy?

- ☐ **A** The profit motive gives firms the incentive to be more efficient
- ☐ **B** Public goods may be under-provided by the price mechanism
- ☐ **C** Goods may be over-provided compared with the social optimum level of output
- ☐ **D** Government intervention leads to the correction of market failure

(Total for Question 2 = 1 mark)

3 Which **one** of the following is an example of market failure?

- ☐ **A** Government provision of flood defences that is greater than the social optimum output
- ☐ **B** Doctors prescribe too many medicines because the cost is covered by health insurance
- ☐ **C** Lower prices create an incentive for firms to switch production to more profitable activities
- ☐ **D** Unintended consequences that follow the introduction of an indirect tax

(Total for Question 3 = 1 mark)



SECTION A**Answer ALL questions in this section.**

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

1 Which **one** of the following is a role of the government in a mixed economy?

- ☐ **A** To provide public goods such as street lighting and flood defences
- ☐ **B** To subsidise goods that cause external costs
- ☐ **C** To tax goods that cause external benefits
- ☐ **D** To introduce regulations that cause excessive administration costs

(Total for Question 1 = 1 mark)

2 Which **one** of the following is an example of market failure?

- ☐ **A** Excessive administration costs associated with government regulation
- ☐ **B** Diminishing marginal utility occurring as consumption increases
- ☐ **C** Rising stock market prices causing a market bubble
- ☐ **D** Unintended consequences after the introduction of a tax

(Total for Question 2 = 1 mark)



SECTION A

Answer ALL questions in this section.

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

- 1 Statement 1:** The consumption of single-use plastic bags in Switzerland decreased by 80% after the Government introduced a tax on them.

Statement 2: Shops should be forced to charge consumers for single-use plastic bags to reduce the amount of plastic waste.

Which **one** of the following best describes the two statements?

- ☐ **A** Both statements are positive
- ☐ **B** Statement 1 is positive and statement 2 is normative
- ☐ **C** Both statements are normative
- ☐ **D** Statement 1 is normative and statement 2 is positive

(Total for Question 1 = 1 mark)

- 2** In April 2018, the Singapore Government passed a law allowing consumers to change electricity providers. Most consumers have not switched their electricity provider despite the opportunity to save, on average, 20% on their bills.

Which **one** of the following could explain this behaviour?

- ☐ **A** Consumers are good at computation
- ☐ **B** Consumers aim to maximise their utility
- ☐ **C** Consumers are influenced by the behaviour of others
- ☐ **D** Consumers feel undervalued by their current provider

(Total for Question 2 = 1 mark)

- 3** Which **one** of the following is an example of market failure?

- ☐ **A** The free-rider problem that results in the underprovision of public goods
- ☐ **B** Higher prices create an incentive for firms to increase the production of a good
- ☐ **C** New government regulations that result in excessive administration costs
- ☐ **D** Government provision of healthcare to move towards the social optimum output

(Total for Question 3 = 1 mark)



SECTION A

Answer ALL questions in this section.

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

1 Which **one** of the following is an example of a market failure?

- ☐ A Unintended consequences
- ☐ B A market bubble in the housing market
- ☐ C Excessive administration costs resulting from regulation
- ☐ D A firm exiting the market because it was making a loss

(Total for Question 1 = 1 mark)

2 In 2015 the Government of Thailand set a maximum price below the market equilibrium price for flights within the country. In 2023 the Government of Thailand increased the maximum price by 3.75%.

Ceteris paribus, which **one** of the following is the most likely result of increasing the maximum price of flights within Thailand?

- ☐ A An increase in excess supply
- ☐ B A decrease in excess supply
- ☐ C An increase in excess demand
- ☐ D A decrease in excess demand

(Total for Question 2 = 1 mark)



SECTION C

Study Figure 1 and Extracts A, B and C in the Source Booklet before answering Question 12.

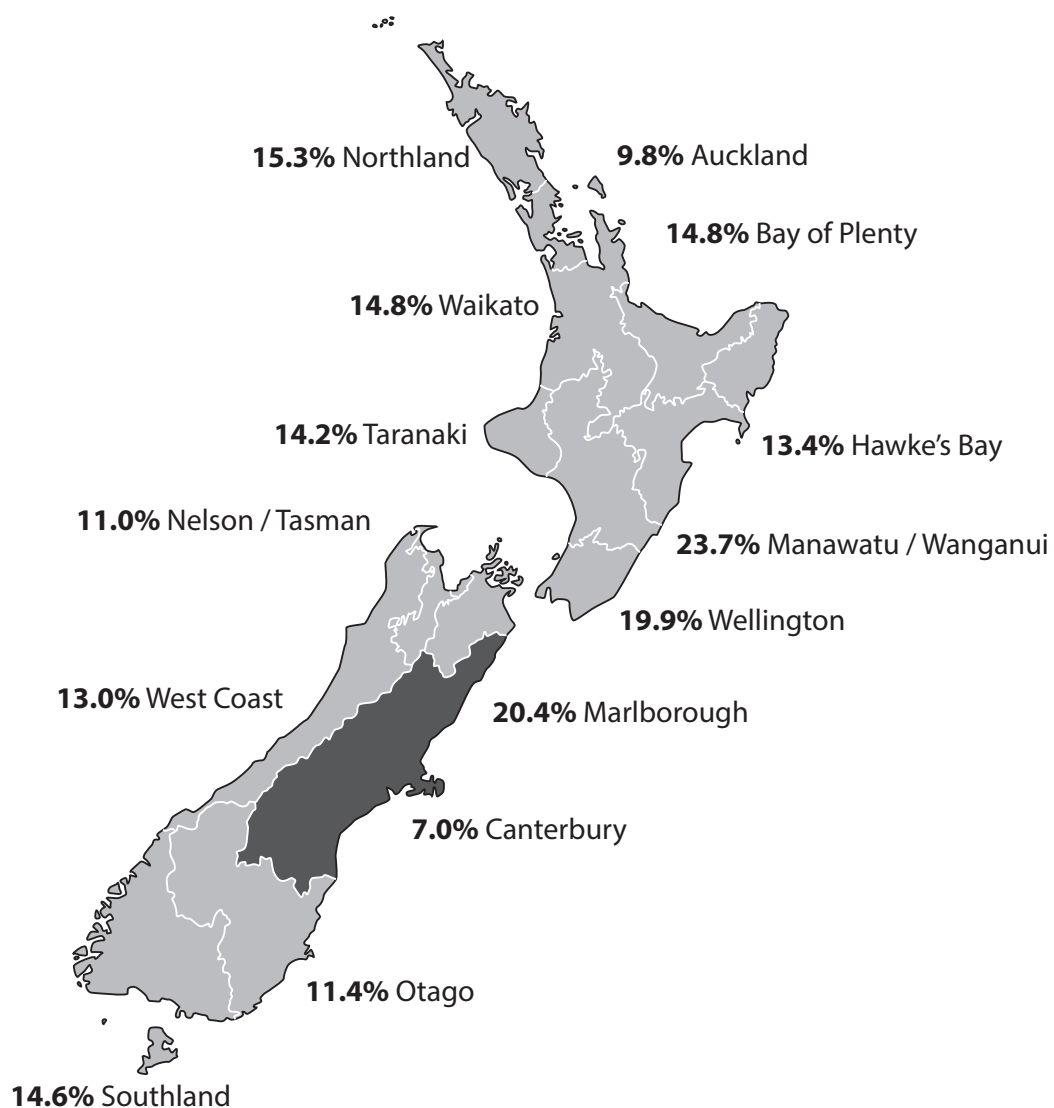
Write your answers in the space provided on the following pages.

- 12** (a) Define the term 'market failure' (Extract A, line 14). (2)
- (b) With reference to paragraph 1 of Extract A, analyse **two** reasons why house prices increased between March 2020 and March 2021. (6)
- Illustrate your answer with a supply and demand diagram. (4)
- (c) With reference to Extract B, explain why the supply of new houses is likely to be price inelastic. (8)
- (d) With reference to Extract C, examine whether national parks in New Zealand are public goods. (14)
- (e) With reference to Figure 1, Extract A and Extract B, discuss the likely microeconomic effects of a housing market bubble in New Zealand. (14)



Sources for use with Section C

New Zealand's housing market and national parks

Figure 1 Percentage change in house prices between March 2020 and March 2021, by region

Extract A Rapid increase in house prices

House prices in New Zealand increased by 15.7% between March 2020 and March 2021. The average house price had risen to NZ\$925 000. This increase in house prices was caused by increasing real incomes, low interest rates and a rise in immigration following the global health crisis. Real incomes increased as a result of an above average rate of economic growth. Between March 2020 and March 2021 the base interest rate in New Zealand was just 0.25%, making it relatively cheap to borrow to purchase houses. 5

Research showed that house prices in New Zealand were about 40% overvalued relative to income. House prices were rising faster than real incomes and were 8.6 times median income in 2020 and 10 times median income in 2021. In Auckland, the average property price increased to NZ\$1.4 million in 2021. This was 35 times median income. 10

According to New Zealand's Prime Minister, Jacinda Ardern, many buyers are speculators. In 2020 approximately 15 000 people buying houses owned five or more. She is worried that the speculators could cause a dangerous housing bubble and market failure. She is also concerned that 1% of the population are homeless, the highest rate of homelessness amongst developed countries. 15

Between 2000 and 2021 house prices increased by 256% in New Zealand. By comparison, house prices in the USA increased by 68% and in the UK by 110%.

Extract B House building in New Zealand

In 2017 the Government promised to build 100 000 new homes. Between June 2018 and July 2020 the Government built just 6 000 homes. It is expensive to build houses and there is much paperwork needed to obtain planning permission. Many local authorities limit the land on which houses can be built in order to protect the environment. There is a shortage of over 55 000 construction workers. 5

Between 2011 and 2020 the average annual growth rate in housebuilding was 13%. However, in 2021, the significant increase in house prices created an incentive to build new houses. Consequently, the number of new houses under construction increased by 26%. 10

Extract C New Zealand's national parks

New Zealand has 13 national parks covering 30 000 km² that the public can explore on foot, by boat, car or air. For much of the year there is so much space that an individual will rarely meet another person. However, in the summer season the national parks are very popular. This means that the national parks become more crowded and car parking spaces are hard to find. 5

Some activities within the national parks, such as skiing and kayaking, have to be paid for. However, individuals can walk, run or cycle across the national parks without charge.



12 (a) Define the term 'market failure' (Extract A, line 14).

(2)



8 Between 1970 and 2020 the Maldives experienced 30 major flood events. One contributing factor was under-investment in flood defences.

Builders of new hotels are required to complete extensive paperwork to show how they plan to minimise flood risk. This results in excessive administrative costs.

With reference to the Maldives, explain the difference between 'market failure' and 'government failure'.

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(Total for Question 8 = 4 marks)



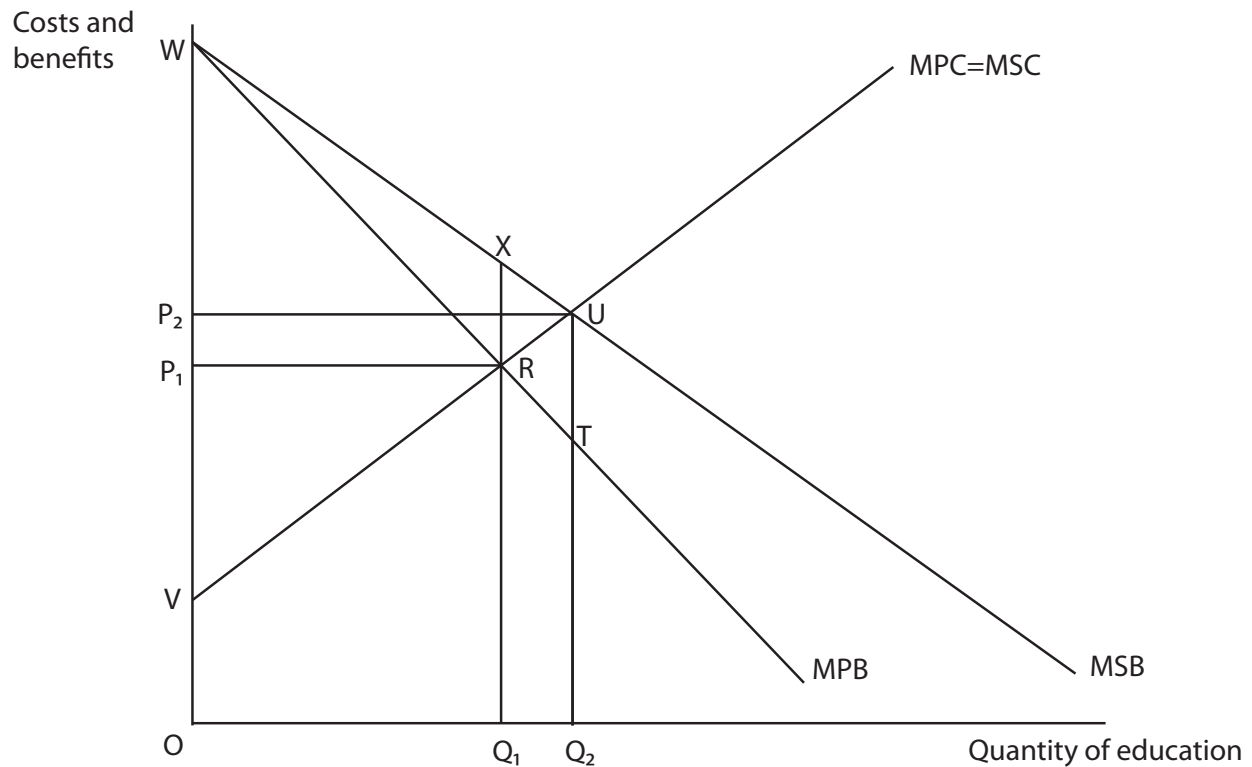
SUB-TOPIC 1.3.5.2

POSITIVE AND NEGATIVE EXTERNALITIES

Sub-topic 1.3.5.2 · 29 questions · 230 marks · lowest tariff first



4 The diagram shows the market for education.

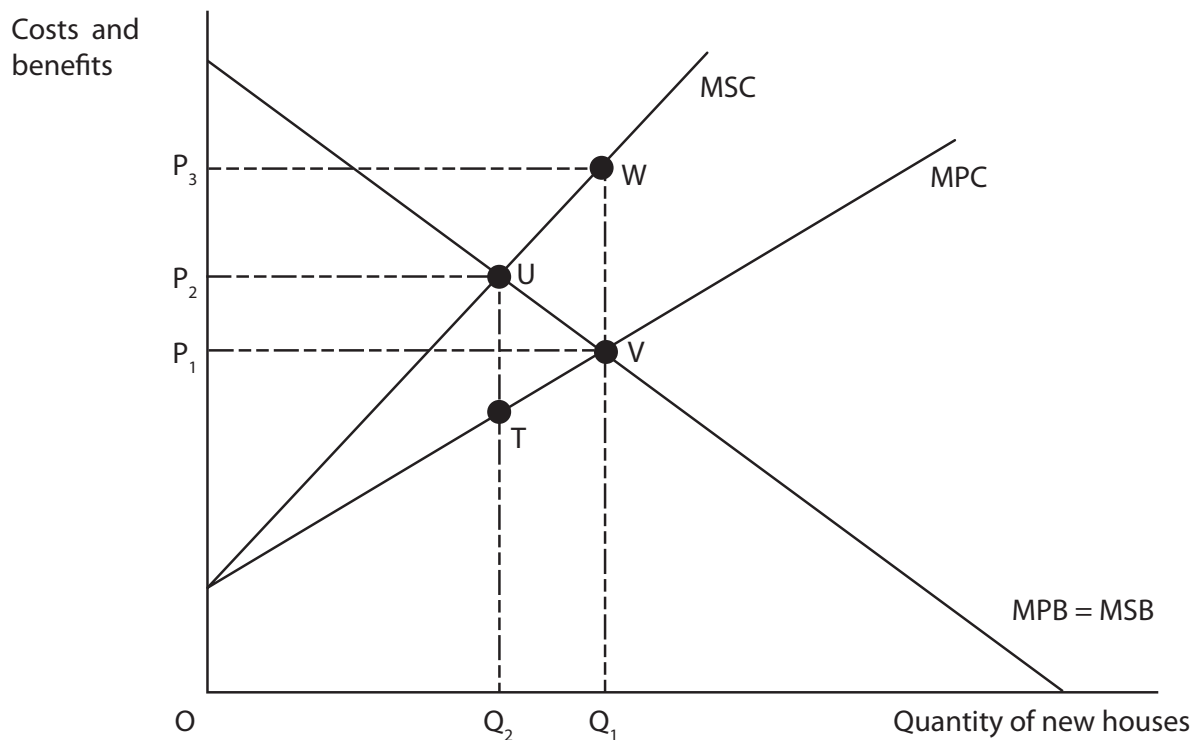


Which **one** of the following can be deduced from the diagram?

- ☐ A The welfare gain area is RUT
- ☐ B The welfare gain area is RUX
- ☐ C The social optimum quantity is Q_1 and price is P_1
- ☐ D The market equilibrium quantity is Q_2 and price is P_2

(Total for Question 4 = 1 mark)

4 The diagram shows the market for new house construction.



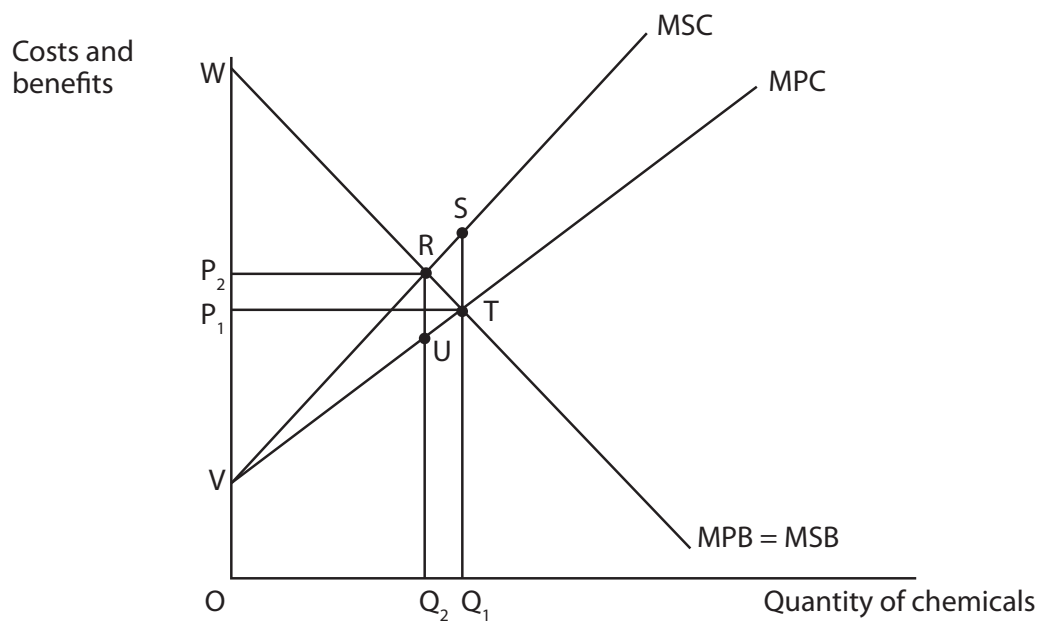
The housing construction industry is a major source of pollution.

Which **one** of the following can be deduced from the diagram?

- ☒ A The social optimum output is Q_1
- ☒ B The market equilibrium output is Q_2
- ☒ C Welfare loss is shown by the area UVT
- ☒ D Welfare loss is shown by the area UWV

(Total for Question 4 = 1 mark)

4 The diagram shows the market for the production of chemicals.

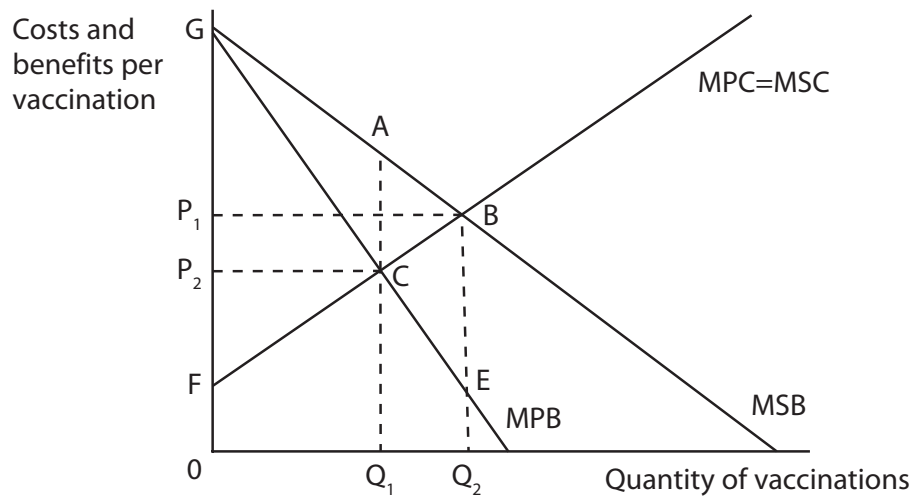


Which **one** of the following can be deduced from the diagram?

- ☐ A The social optimum quantity is Q_1 and price is P_1
- ☐ B The market equilibrium quantity is Q_2 and price is P_2
- ☐ C The welfare loss area is RTU
- ☐ D The welfare loss area is RST

(Total for Question 4 = 1 mark)

4 The diagram shows the market for vaccinations against measles.

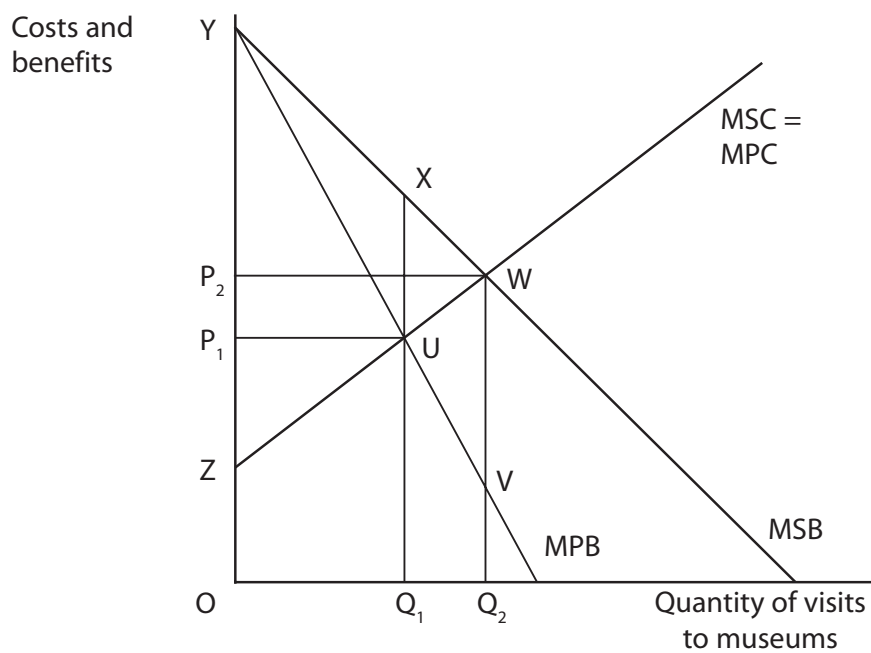


Which **one** of the following can be deduced from the diagram?

- ☐ **A** The social optimum output is Q_1
- ☐ **B** The market equilibrium output is Q_2
- ☐ **C** Welfare gain is shown by the area BCE
- ☐ **D** Welfare gain is shown by the area ABC

(Total for Question 4 = 1 mark)

4 The diagram shows the market for museum visits in Spain.

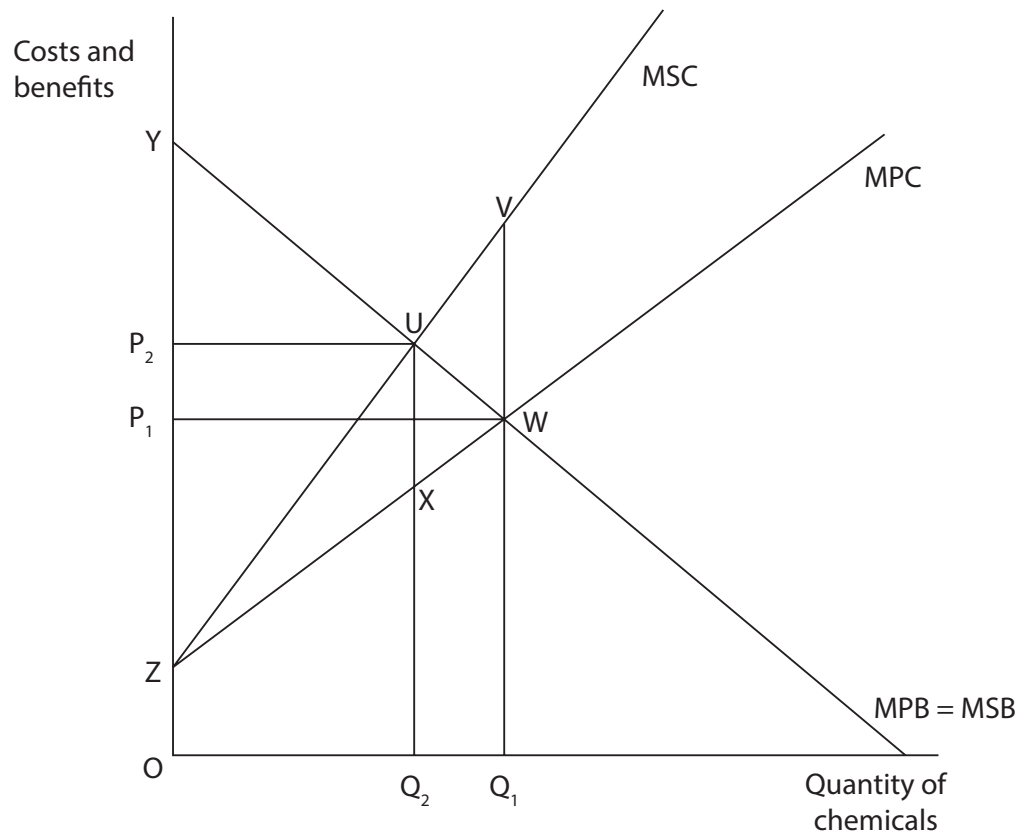


Which **one** of the following can be deduced from this diagram?

- ☐ A The market equilibrium quantity is at Q_2
- ☐ B The social optimum quantity is at Q_1
- ☐ C The welfare gain area would be equal to UVW
- ☐ D The welfare gain area would be equal to UWX

(Total for Question 4 = 1 mark)

4 The diagram shows an externalities diagram for the production of chemicals.



Which **one** of the following shows the area of welfare loss?

- ☒ A UVW
- ☒ B UWX
- ☒ C ZP_1W
- ☒ D ZP_2U

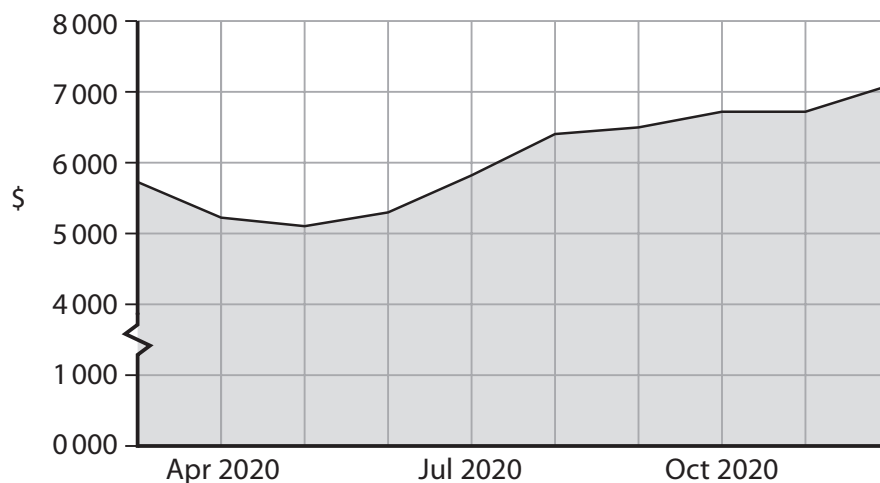
(Total for Question 4 = 1 mark)

SECTION C

Study Figure 1, Extract A, Figure 2 and Extract B in the Source Booklet before answering Question 12.

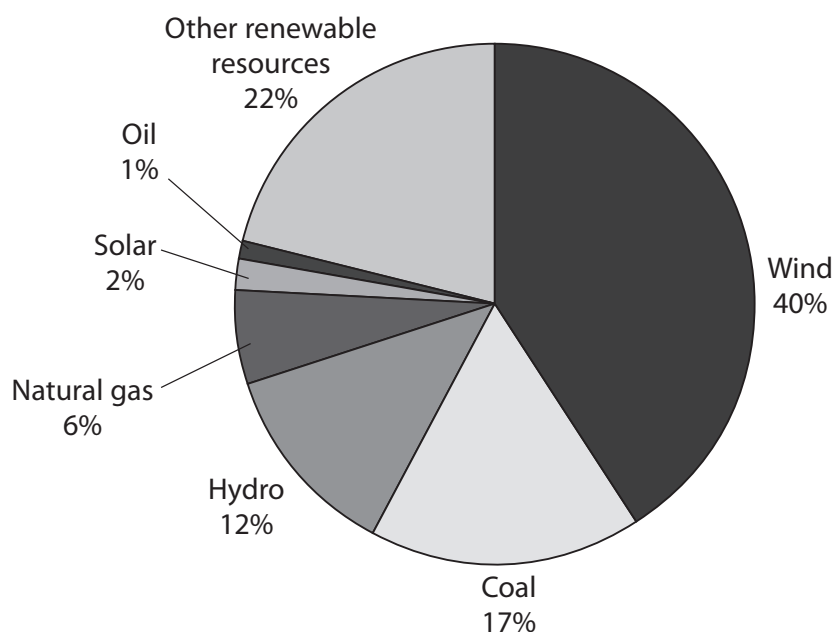
Write your answers in the space provided on the following pages.

- 12** (a) Define the term 'external costs' (Extract B, line 3). (2)
- (b) With reference to Figure 2, explain the difference between 'renewable resources' and 'non renewable resources'. (4)
- (c) With reference to Figure 1 and Extract A, analyse **two** reasons why 'the world price of copper increased significantly' between May and December 2020. (6)
- Illustrate your answer with a supply and demand diagram.
- (d) With reference to Extract A, examine **two** likely effects of an increase in the price of copper on plumbing firms that replace water pipes in customers' homes. (8)
- (e) With reference to Extract B and your own knowledge, discuss the possible effects of a subsidy paid to manufacturers of battery electric buses (BEBs). (14)
- Illustrate your answer with an appropriate diagram.

Sources for use with Section C**The markets for copper, electricity and battery electric buses (BEBs)****Figure 1 World price of copper, \$ per metric tonne, March 2020 to December 2020****Extract A Copper prices rise**

Between May and December 2020 the world price of copper increased significantly. Speculators expected the global rate of economic growth to recover from the global health crisis and started to buy more copper. In addition, the Chinese Government made a substantial investment in infrastructure that required copper. Output of electric vehicles also increased. Each vehicle requires approximately 59 kg of copper in its production. 5

Most plumbers prefer to use copper pipes rather than plastic pipes. With the increased demand for copper for other purposes, it is likely that the price of copper pipes will increase significantly in the future.

Figure 2 Electricity generation by different sources in Denmark, 2018**Extract B Battery electric buses (BEBs)**

Diesel buses are used in city locations with large concentrations of people. They create external costs, including reducing air quality. Children who ride the bus to school are more likely to develop respiratory diseases, such as asthma, and to have higher rates of cancer.

5

BEBs are powered by electric batteries that run an electric motor. Bus batteries are recharged using the national electricity grid. BEBs do not have engines that use fossil fuels. Therefore, BEBs help to reduce greenhouse gas emissions and pollution in city centres. They also produce much less noise pollution than diesel buses.

In 2018 the price of a diesel bus was \$480 000, whereas the price of a BEB was \$887 000. This price difference has started to decrease. For a transport company, it is 2.5 times cheaper to run a BEB than a diesel bus. The maintenance costs are also far lower for a BEB as there are fewer component parts within the motor. On average, a BEB can travel 150 miles on a fully charged battery, whereas a diesel bus can travel 690 miles on a full tank of diesel.

10

15

In 2018 there were 386 000 BEBs globally. 99% of these were in China and 0.09% were in the USA. In response, the US Government allocated \$979 million of subsidies to increase the number of BEBs.

SECTION C

Study Extracts A, B and C and Figure 1 in the Source Booklet before answering Question 12.

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

- 12** (a) Define the term 'external costs' (Extract C, line 11). (2)
- (b) With reference to the second paragraph of Extract A, explain the phrase 'the supply of semiconductors is inelastic.' (4)
- (c) With reference to Extract A, analyse **two** reasons why semiconductor prices 'increased on average by 20%'.
Illustrate your answer with a supply and demand diagram. (6)
- (d) With reference to Extract B and Figure 1, examine **two** likely effects of excess demand for semiconductors on car manufacturers. (8)
- (e) With reference to Extract C and your own knowledge, discuss the possible microeconomic effects of the subsidies paid to semiconductor manufacturers in the USA.
Illustrate your answer with an appropriate diagram. (14)

Sources for use with Section C

The semiconductor market

Extract A Semiconductor shortage

Semiconductors are used in a wide range of goods including cars, washing machines and smartphones. In Quarter 1 2021 the price of semiconductors increased on average by 20%. This was partly caused by a rise in the costs of steel and copper that are used in the production of semiconductors. A further cause was the global health crisis that led to a significant increase in the demand for laptops, tablets and smartphones. Semiconductors are essential components of these devices. 5

The supply of semiconductors is inelastic. Manufacturers of semiconductors were operating at 100% capacity and therefore struggled to respond to the increase in demand. Semiconductor manufacturers tried to increase production but it was not possible to make additional capacity available for a considerable time. 10

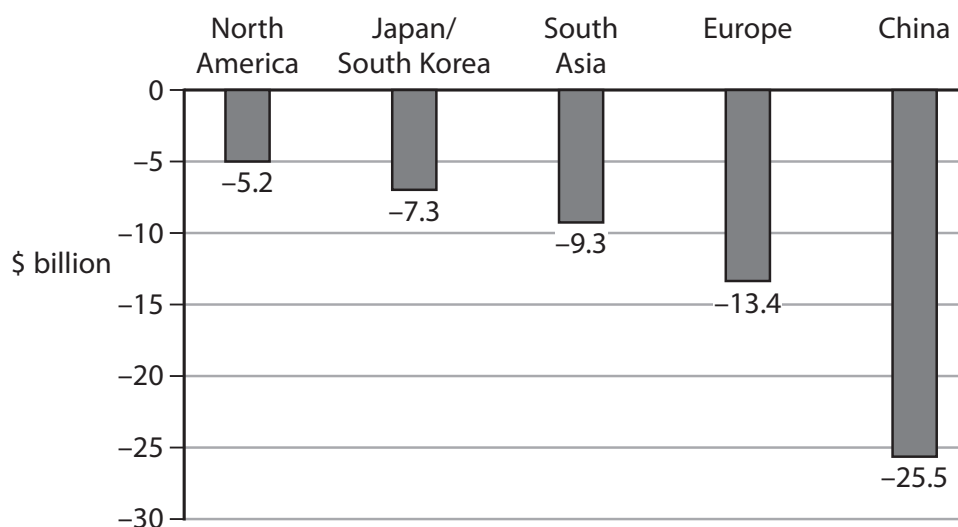
Extract B Excess demand for semiconductors affects car manufacturers

In 2021 the global demand for cars increased following very low sales in 2020. This increased the demand for semiconductors. However, the manufacturers of semiconductors were unable to supply the amount demanded, resulting in excess demand. As a result, many car manufacturers reduced production. For example: 5

- Volkswagen produced 100 000 fewer cars in the first quarter of 2021
- Car production in Japan decreased by 19% in May 2021
- General Motors (GM) shut down production in July and August 2021.

Some car manufacturers removed features that require semiconductors. For example, GM removed wireless charging features, Renault stopped installing large screens and Nissan removed navigation systems. 10

The shortage of new cars led to higher prices and many consumers had to buy used cars whose prices increased also. In the USA the average price of used cars doubled in the first 6 months of 2021.

Figure 1 Fall in the revenues of car manufacturers in 2021, \$ billion, by region**Extract C Subsidies to semiconductor manufacturers in the USA**

In 1990 63% of semiconductors required by manufacturers in the USA were imported. By 2020 this had increased to 88%. Between 2000 and 2020 the US Government made no subsidy payments to semiconductor manufacturers. However, in 2021 it provided subsidies of \$52 billion. The US Government wanted to reduce its reliance on importing semiconductors. The subsidies may make it more profitable to produce semiconductors in the USA rather than in Asia, where production costs are lower. It is hoped that the subsidies will result in at least seven new semiconductor factories being built in the USA. However, it typically takes three years before a semiconductor factory is fully operational.

5

There are concerns that increased production of semiconductors will cause a range of external costs. Production involves acids and toxic gases that may cause cancer. A large amount of water is required to manufacture semiconductors and this creates contaminated waste water.

10

12 (a) Define the term 'external costs' (Extract C, line 11).

(2)

(b) With reference to the second paragraph of Extract A, explain the phrase 'the supply of semiconductors is inelastic.'

(4)

SECTION B

Answer ALL questions in this section in the space provided.

- 7 According to the World Health Organization vaccinations prevent more than 2 million deaths each year. However, in 2014 there were 18.7 million infants not receiving any vaccinations.

Draw an externalities diagram to illustrate the underconsumption of vaccinations.

(Total for Question 7 = 4 marks)



-
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(Total for Question 7 = 4 marks)



SECTION B

Answer ALL questions in this section in the spaces provided.

- 7** In 2021 the number of citizens taking online education courses in the Philippines was 1 300 000.

Draw a diagram to illustrate the likely external benefits resulting from online education in the Philippines.

This image shows a single page of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

(Total for Question 7 = 4 marks)



SECTION C

Study Figure 1 and Extracts A, B and C in the Source Booklet before answering Question 12.

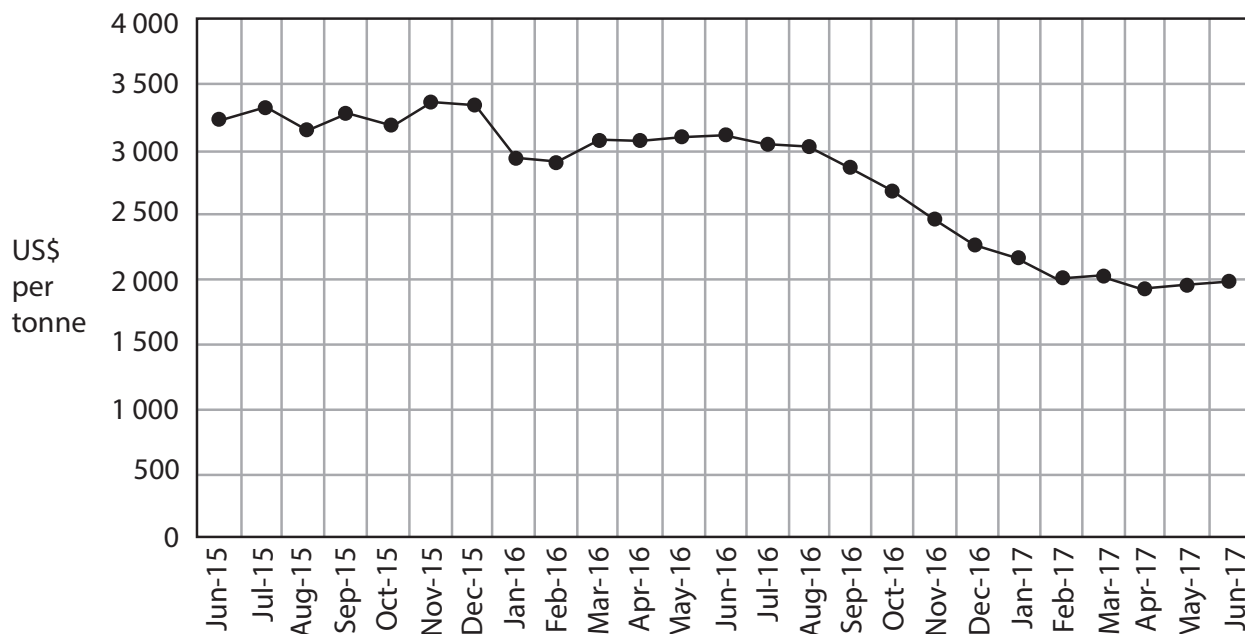
Write your answers in the space provided on the following pages.

- 12** (a) Define the term 'substitutes' (Extract A, line 12). (2)
- (b) With reference to Extract A, explain **one** factor that is likely to influence the price elasticity of supply for cocoa beans. (4)
- (c) With reference to Figure 1 and Extract A, analyse **one** reason why the price of cocoa beans 'fell below \$2 000 per tonne' (Extract A, line 8) in April 2017. Illustrate your answer with a supply and demand diagram. (6)
- (d) With reference to Extract B, examine the external costs associated with the production of cocoa beans. (8)
- (e) With reference to Extract C, discuss the likely effects of the reduction in the minimum (guaranteed) price for cocoa. Illustrate your answer with an appropriate diagram. (14)

Sources for use with Section C.

The market for cocoa

Figure 1 - Price of cocoa beans, US\$ per tonne, June 2015 to June 2017



Extract A - The price of cocoa falls

Cocoa bean prices were high during 2015 and much of 2016 reflecting increased demand and decreased supply. For example, in 2016, consumption of cocoa exceeded production by 197 000 tonnes.

However, in 2017, production in the Côte d'Ivoire rose from 1.45 million tonnes to 1.93 million tonnes. The Côte d'Ivoire's output increased after many new cocoa trees matured. Good cocoa harvests during 2017 led to stocks being 27.3% higher than in 2016. In April 2017, cocoa bean prices fell below \$2 000 per tonne.

5

Cocoa trees take four to five years to mature and produce cocoa pods. Cocoa trees grow best in regions near the equator. This means very few countries can successfully grow the crop.

10

In contrast, the prices of substitutes for cocoa such as tea and coffee increased during 2017.

Extract B – Cocoa production can damage the environment

Poor management of land used to produce cocoa means rainforest has to be destroyed so new plantations can be started. Soil erosion, caused by growing too much cocoa, makes the land less fertile and reduces crop yield. To increase production, some farmers have started to use fertilisers which cause river pollution.

5

Farmers should be removing old cocoa trees and allowing the land to recover. Many cannot afford to do this because they need to earn revenue until the replacement trees grow. The continued use of older trees results in lower yields. Consequently farmers seek new land by destroying rainforests. In Indonesia the amount of land that is rainforest has fallen from 30% to closer to 15%. This has a significant negative impact on biodiversity.

10

However, the Rainforest Alliance trains cocoa farmers on how to manage their trees to avoid environmental damage. Between 2009 to 2015 the amount of cocoa produced by Rainforest Alliance farms increased from 2% to 16%.

Extract C – Minimum price scheme in the Côte d'Ivoire

The Côte d'Ivoire Government sets a minimum (guaranteed) price for cocoa. In 2017, it reduced the minimum price by 36% to cut government spending and reduce cocoa stocks. However, some farmers still sell cocoa at prices below the minimum price because they can receive payments more quickly than from the Government.

5



(d) With reference to Extract B, examine the external costs associated with the production of cocoa beans.

(8)





SECTION C

Study Figures 1 and 2 and Extracts A and B in the Source Booklet before answering Question 12.

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

- 12** (a) Define the term 'free good' (Extract A, line 7).

(2)

Between 2008 and 2016 weekly household real income increased by 2.7% in Australia.

- (b) With reference to Figure 1, explain the likely change in quantity demanded of lamb between 2008 and 2016.

(4)

- (c) With reference to Figure 2 and Extract A, analyse **one** reason why the price of lamb increased during 2017.

Illustrate your answer with a supply and demand diagram.

(6)

- (d) With reference to Extract B, examine the external costs resulting from increased meat production.

(8)

- (e) With reference to Extract B, discuss the likely effects of the introduction of an indirect tax on meat.

Illustrate your answer with an appropriate diagram.

(14)

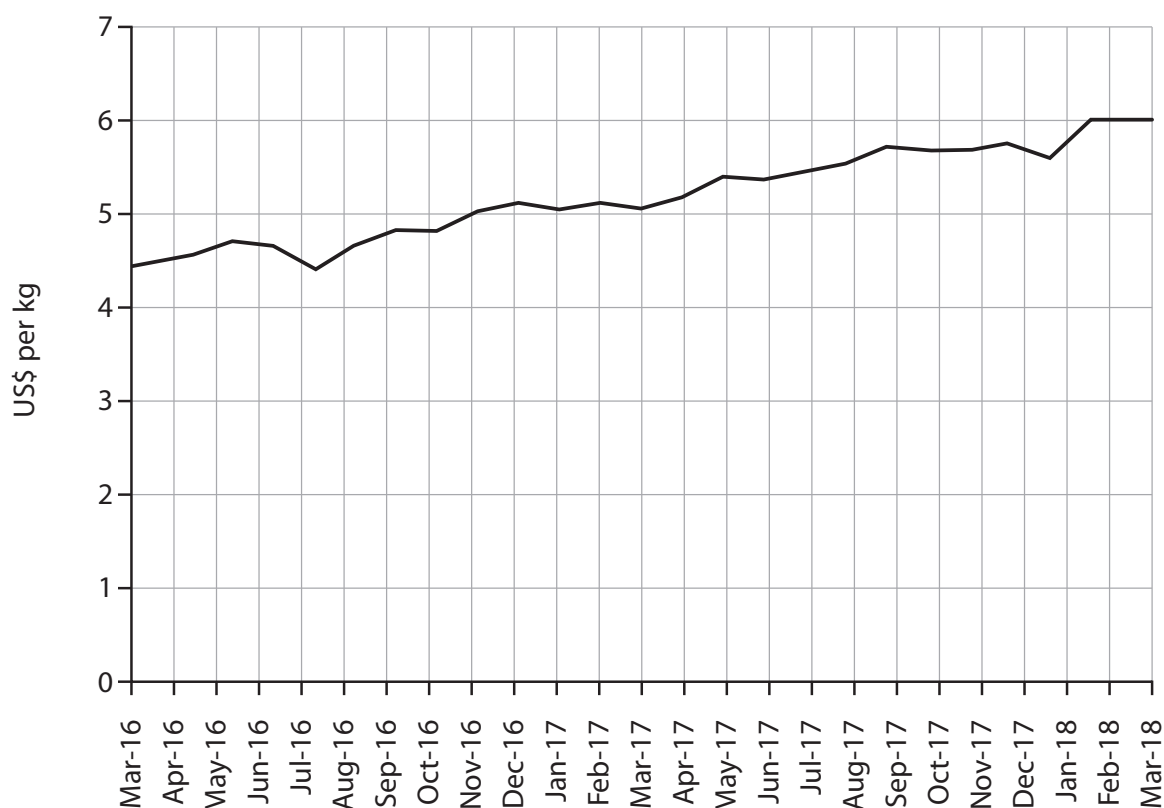
Sources for use with Section C.

The market for meat

Figure 1 Australian consumers' income elasticity of demand for lamb

	Income elasticity of demand (estimated)
Lamb	- 0.146

Figure 2 World price of lamb, US\$ per kg, March 2016 to March 2018



Extract A The price of lamb

The rise in the price of lamb has come at a time when supply is stable. Higher demand for lamb has been caused by a number of factors. Rising global incomes led to a 28% increase in demand for Australian lamb in 2017. At the same time demand has risen in the USA. Successful advertising campaigns have also contributed to increased demand.

5

The lambs in Australia are often allowed to walk and graze freely and most of their food is wild grass which is considered to be a free good.



Extract B Indirect tax on meat needed to address climate change

Meat consumption continues to increase around the world and meat production has risen in response. However, meat production has a damaging effect on the environment causing water pollution and 15% of all global greenhouse gas emissions. Excessive use of antibiotics to treat animals is also leading to a decline in the effectiveness of antibiotics used to treat human illnesses. 5

Many people consume too much meat, seriously damaging their health. This results in an increase in obesity, diabetes and cancer. For example, consuming 100 grams of red meat per day increases the risk of developing diabetes by 19%.

The Paris climate agreement set limits on the amount of global greenhouse gas emissions. However these targets will be missed unless taxes are used to restrict production and consumption. 10

One study looked at the impact of the introduction of a global meat tax. This study found a 40% tax on beef, a 20% tax on dairy products and a 8.5% tax on chicken would reduce emissions and save 500 000 lives a year. 15

The problems associated with meat production are not well-known by the public. One way to reduce emissions without the need for a tax would be for governments to provide the public with information on the external costs associated with meat production and consumption.

(8)





SECTION C

Study Extracts A, B and C and Figures 1 and 2 in the Source Booklet before answering Question 12.

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

- 12** (a) Define the term 'information gap' (Extract B, line 3). (2)
- (b) Explain what is meant by 'positive economic statements'. Include **two** examples from the extracts to support your answer. (4)
- (c) Analyse **one** reason why 'the price of plastic waste material fell by more than 40%' (Extract A, line 2). (6)
- Illustrate your answer with a supply and demand diagram.
- (d) With reference to Extract B, examine the external costs associated with the consumption and disposal of plastic bags. (8)
- (e) With reference to Extract C, Figure 1 and Figure 2, discuss the microeconomic impact of the introduction of an indirect tax on plastic bags. (14)
- Illustrate your answer with an appropriate diagram.

Sources for use with Section C.

The market for plastics

Extract A Plastic waste prices fall

During 2017 the price of plastic waste material fell by more than 40%. This was mainly caused by China imposing a ban on the import of plastic waste. The loss of such a large market caused a decrease in the average price from £373 per tonne in February to £215 per tonne in December. This is the price paid by the businesses who recycle the waste material. 5

Craig Curtis, Managing Director of CS Recycling, commented that there were now dramatically fewer buyers for the plastic waste.

Extract B Plastic bags damaging the environment

Plastic bags have a significant impact on the environment. However, there appears to be an information gap since many people are not aware of the harmful effects caused by the disposal of plastic bags. These include:

- Plastic bags break down into smaller and smaller toxic pieces 5
- A plastic bag takes between 400 to 1 000 years to break down
- As it breaks down, plastic particles contaminate soil and waterways
- Plastic bags cause over 100 000 marine animal deaths every year
- Nearly 90% of the debris in our oceans is plastic
- Some of the food humans eat may be contaminated with toxins from plastic. 10

Extract C Reducing plastic bag use in the European Union (EU)

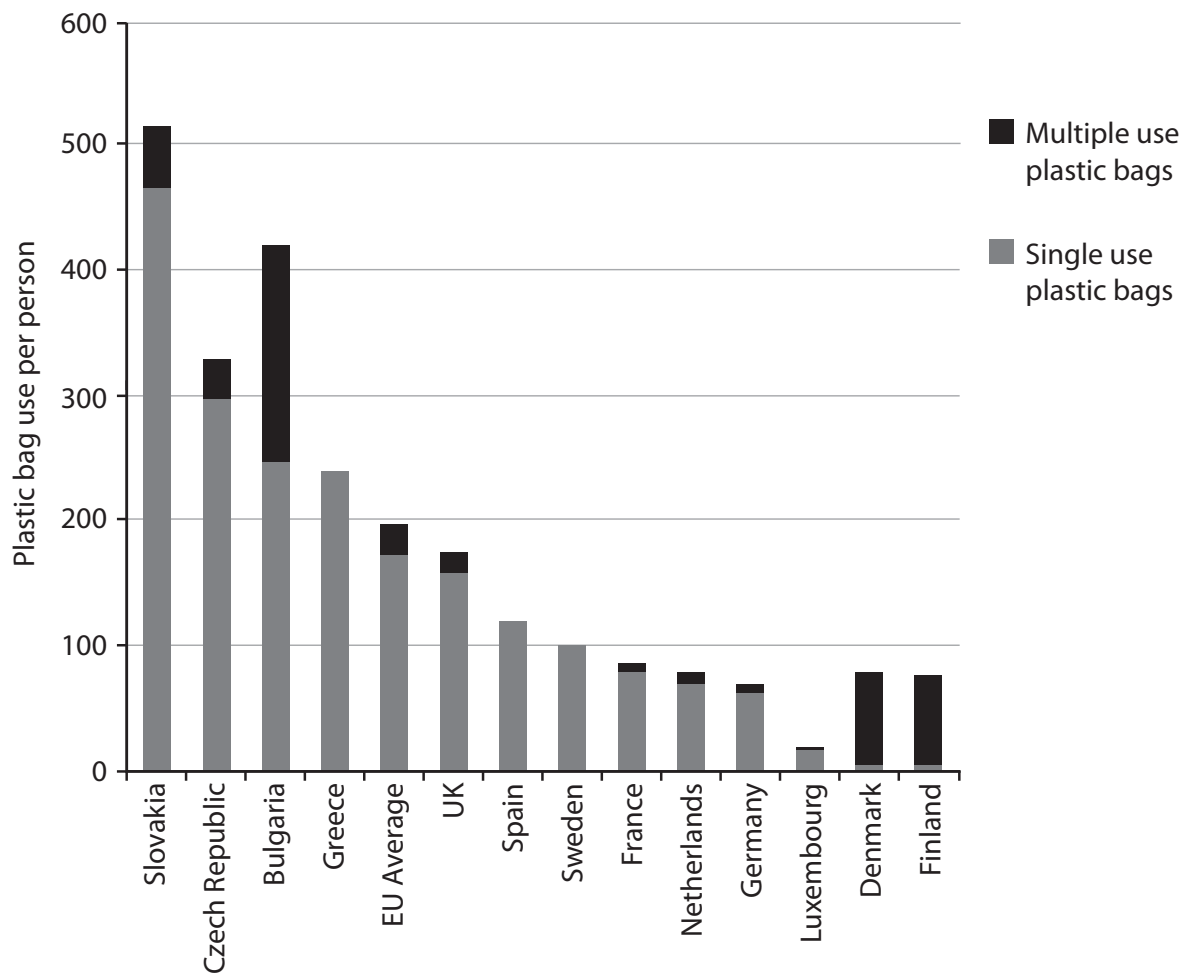
The yearly consumption of plastic carrier bags in the EU is nearly 100 billion. 92% of these are single use carrier bags. Around 3% of the marine litter in Europe is shopping bags.

In 1994 Denmark introduced a plastic bag tax of €0.27 per bag which supermarkets have passed onto consumers. However, clothing shops do not charge consumers for the bags and pay the tax themselves. In the year before the tax was introduced 800 million bags were used and in the year after the tax this dropped to 400 millions bags. The Danish Government found the tax on plastic bags raised just 0.03% of total tax revenue in 1995 and by 2014 this had fallen to 0.02%. 5

In January 2018 Greece introduced a plastic bag tax of €0.04 per bag. This resulted in a 75% decrease in the use of plastic bags compared with January 2017. Sales of reusable shopping bags increased by 5 000%. It is estimated that the average consumer will now only use 110 plastic bags per year. The EU target is 90 bags per person per year. 10

Figure 1 Revenues from the tax on plastic bags for Denmark

Year	Tax revenue
1995	€21 564 000
2000	€23 779 000
2005	€25 723 000
2010	€26 818 000
2015	€24 547 000

Figure 2 Plastic bag use per person in selected countries, 2010

(8)



Handwriting practice area with 25 horizontal dotted lines.



SECTION C

Study Figure 1 and Extracts A, B and C in the Source Booklet before answering Question 12.

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

- 12** (a) Define the term 'indirect tax' (Extract B, line 20). (2)
- (b) With reference to the **titles** of Extract A and Extract B, explain the difference between positive statements and normative statements. (4)
- (c) With reference to Figure 1 and Extract A, analyse **two** reasons why between 1 April 2020 and 1 January 2021 the world price of cotton increased. Illustrate your answer with a supply and demand diagram. (6)
- (d) With reference to Extract B, examine **two** external costs associated with the production of clothing. (8)
- (e) With reference to Extract C, discuss the impact of the removal of the subsidy paid to Indian clothing manufacturers on consumers and manufacturers. Illustrate your answer with an appropriate diagram. (14)

Sources for use with Section C

Cotton and clothing

Figure 1 World price of cotton, \$ per lb, April 2020 to January 2021



Extract A World cotton price rises

Between 1 April 2020 and 1 January 2021 the demand for face masks, bedsheets and surgical gowns increased. All require cotton in their production. During the same period there was a reduced cotton crop in Pakistan, the world's fourth largest supplier. High temperatures resulted in a decrease in the amount of cotton produced. Both these factors caused an increase in the price of cotton.

5



Extract B Clothing manufacturers should reduce environmental costs

Clothing retailers and manufacturers earn \$2.4 billion globally and directly employ 75 million people. The clothing industry is the world's third largest manufacturing sector.

The manufacture of clothing involves significant environmental costs. For example, on average, producing one pair of jeans requires 3 781 litres of water and creates 33.4 kg of carbon emissions. This includes the production of the cotton through to the delivery of the final product to stores. 5

According to the United Nations, each year:

- clothing manufacturers use 93 billion cubic metres of water
- 20% of all wastewater comes from clothes dyeing by manufacturers 10
- after use, 87% of clothing is burnt or disposed of in landfill
- clothing manufacturers produce 10% of annual global carbon emissions. This is more than all international flights and shipping combined.

Clothing retailers used to have four seasonal clothing ranges per year. However, many clothing stores now offer new ranges weekly. Between 2000 and 2020 the number of clothing items produced yearly increased from 50 billion to 100 billion. In 2019 a person bought, on average, 60% more clothing than in 2000 and more items of clothing are thrown away. Less than 1% of used clothing is recycled into new garments. 15

In response to the environmental damage caused by the clothing industry, Ireland's Government is considering the introduction of an indirect tax on clothing. 20

Extract C Indian Government to remove clothing subsidy

India employs 35 million workers in clothing manufacturing. Clothing accounts for 12% of India's exports. To protect this important industry the Indian Government used to pay a subsidy to clothing manufacturers. However, the US Government and the Turkish Government argued that this gave Indian manufacturers an unfair advantage. Consequently the Indian Government removed this subsidy in 2018. 5



(8)





SECTION C

Study Figures 1 and 2 and Extracts A and B in the Source Booklet before answering Question 12.

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

- 12** (a) Define the term 'price elasticity of demand'. (Figure 2) (2)
- (b) Between 2020 and 2021 real incomes increased by 6.8% in Beijing.
With reference to Figure 2, explain whether chicken is a normal good or an inferior good. (4)
- (c) With reference to Figure 1 and the first paragraph of Extract A, analyse **one** demand reason and **one** supply reason why the price of chicken increased by 147% between May 2020 and May 2022.
Illustrate your answer with a supply and demand diagram. (6)
- (d) With reference to the second and third paragraphs of Extract A, examine **two** external costs associated with chicken production. (8)
- (e) With reference to Extract B and your own knowledge, discuss the impact of the introduction of an indirect tax on 'junk food'.
Illustrate your answer with an appropriate diagram. (14)

Sources for use with Section C

The markets for chicken and 'junk food'

Figure 1

Global price of chicken, \$ per kilogram, May 2020 to May 2022

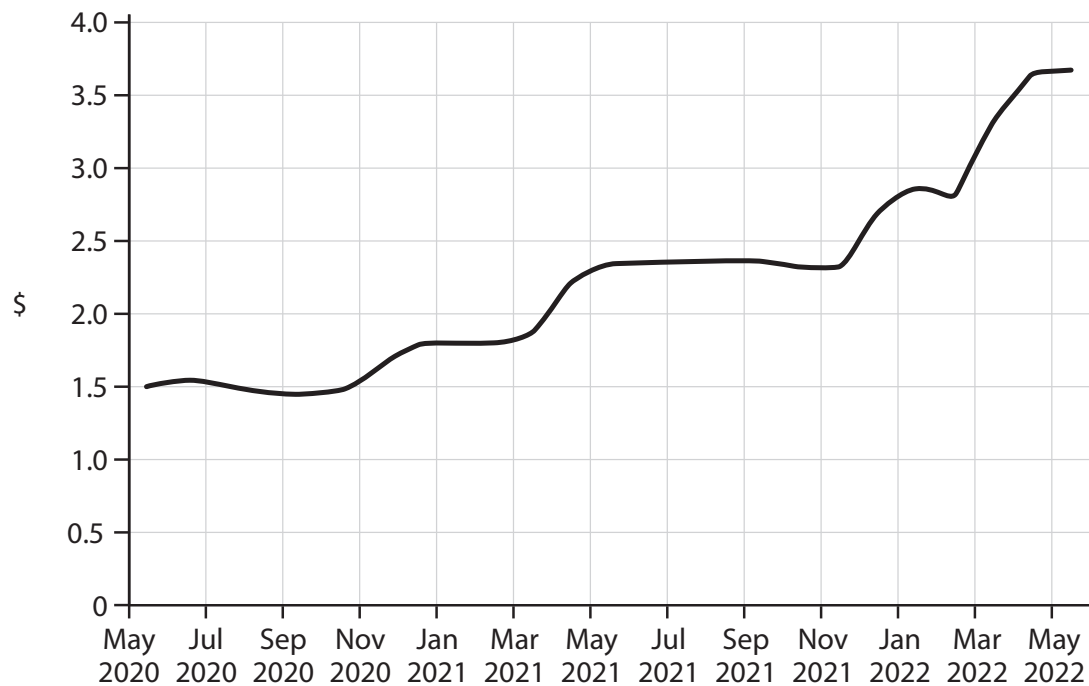


Figure 2

Estimated price elasticity of demand and estimated income elasticity of demand for chicken in Beijing, China for 2021

Price elasticity of demand	-0.55
Income elasticity of demand	+1.04

Extract A The global price of chicken

Between May 2020 and May 2022 the price of chicken increased by 147%. Problems in corn and wheat production resulted in a 20% increase in the cost of chicken feed. In addition, an outbreak of bird flu meant that, between October 2021 and December 2022, 140 million chickens globally could not be sold for consumption. At the same time, chicken became a more popular choice for consumers because it is considered to be a healthier option than other meats. 5

The production of one kilogram (kg) of chicken:

- uses 957 litres of water
- uses 0.9kg of grain to feed the chickens
- produces 0.7kg of carbon dioxide. 10

Globally, 345 billion kg of chickens are produced per year. Consequently, chicken production has a substantial impact on the environment. However, compared to 1965, producing the same amount of chicken has a 50% less negative impact on the environment. 15

Extract B ‘Junk food’ consumption

‘Junk food’ is a term used for foods that are high in calories, salt, sugar or fat and are low in nutrients. It includes burgers, fried chicken, pizza, chips and ice cream. Between 2020 and 2021, the global market for fast food (that includes junk food) grew from \$862 billion to \$972 billion and it is expected to grow further to \$1 467 billion by 2028. The World Health Organization (WHO) estimated that junk food contributed to 770 million people being obese in 2020. By 2030 it estimates that there will be over 1 billion obese people. Obesity increases the risk of cancer, heart disease and diabetes. In developed countries, treating obesity-related issues accounts for 8.4% of expenditure on healthcare. 5

Several governments have introduced taxes on junk food. For example: 10

- In 2011 the Government of Denmark introduced a tax on foods containing high levels of fat. This caused an increase in the price of these foods and resulted in job losses. As a result, the Government abandoned this tax in 2012
- In 2011 the Government of Hungary imposed taxes on food containing high levels of salt and sugar. This resulted in a 73% reduction in consumption of these foods. Demand for bottled water, fruit and vegetables increased 15
- In 2013 the Government of Mexico introduced a tax on high-calorie foods. This resulted in a 7% decline in junk food consumption between 2013 and 2018.

The WHO has recommended that more countries should introduce indirect taxes on junk food as a means of improving health. 20

(d) With reference to the second and third paragraphs of Extract A, examine **two** external costs associated with chicken production.

(8)





SECTION C

Study Figures 1 and 2 and Extracts A, B and C in the Source Booklet before answering Question 12.

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

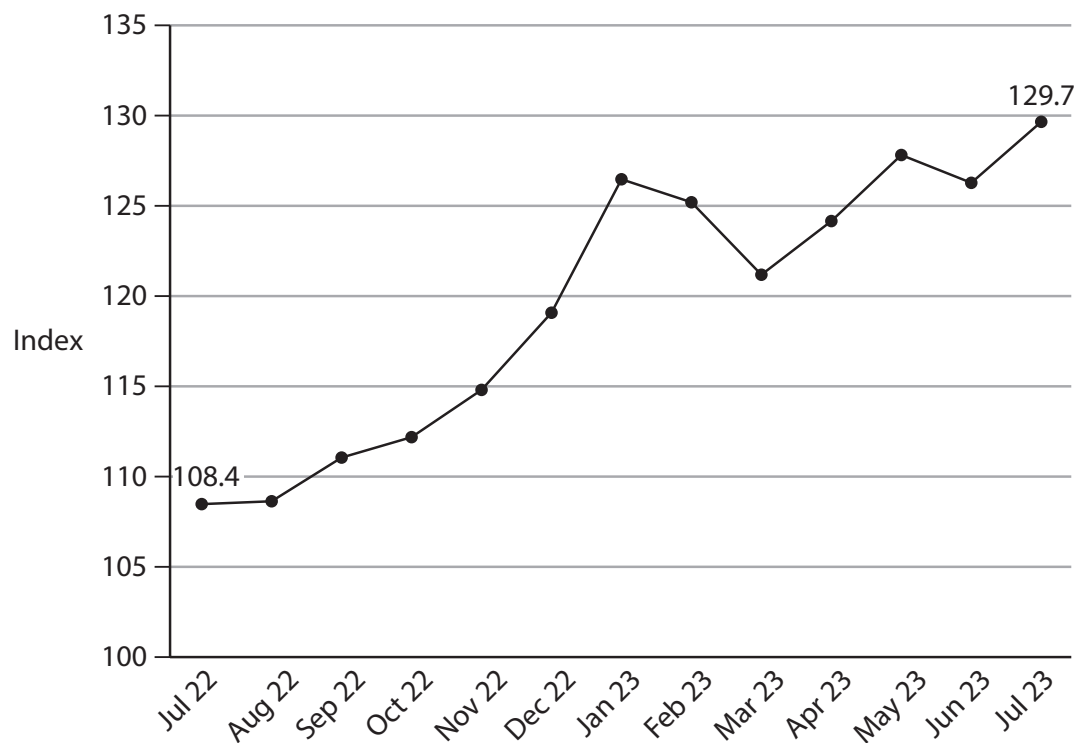
- 12** (a) Define the term 'capital goods'. (Extract C, line 5) (2)
- (b) With reference to Figure 1 and Extract A, analyse **two** reasons why the price of rice increased between July 2022 and July 2023.
Illustrate your answer with a supply and demand diagram. (6)
- (c) With reference to Figure 2, explain whether demand for **each** of the four selected food groups is price elastic or price inelastic. (4)
- (d) With reference to Extract B, examine **two** external costs associated with rice production. (8)
- (e) With reference to Extract C, discuss the benefits of subsidies paid to rice growers.
Illustrate your answer with an appropriate diagram. (14)



Sources for use with Section C.

The market for rice

Figure 1: Index of the world price for rice, July 2022 to July 2023 (July 2016 = 100)



Extract A Rice price rising

The global price of rice increased by over 19.6% between July 2022 and July 2023. Rice consumption in Africa and Asia is growing rapidly, as populations increase and incomes rise. In 2022 the population grew by 2.45% in Africa and by 0.83% in Asia. This compared to a 0.06% increase in Europe. In 2022 average real income growth was approximately 4% in Asia and 3.85% in Africa. In advanced economies the average increase in real incomes was only 2%.

5

Figure 2: Estimated price elasticities of demand in Japan for selected food groups

Food item	Estimate of price elasticity of demand
Vegetables	-0.77
Fish	-0.70
Meat	-0.52
Rice	-1.82

Extract B The impact of rice production

Rice production contributes 12% of global methane emissions and 1.5% of all greenhouse gas emissions. Vietnam's paddy fields, where the rice is grown, produce more carbon emissions than the country's transportation network.

Producing one kilogram of rice requires 2 500 litres of water. Rice production uses over 33% of the world's irrigation water. 5

Rice growers often use an insecticide to protect the crop from insects. In the USA these insecticides contributed to a 44% decline in the bee population in 2020.

On average, 90% of rice is consumed in the country in which it is grown. This limits the environmental damage caused by transporting rice abroad. 10

Extract C Indian Government intervention in the market for rice

The rice sector contributes \$51.58 billion to the Indian economy. India exports rice to 150 countries.

The Government supports rice growers by providing subsidies. These subsidies are used by farmers to invest in capital goods and to purchase fertiliser and water used in production. This can lead to over-farming that results in lower quality rice crops. 5

In 2021 the Indian Government spent \$6.9 billion on subsidising rice production.

In 2022 the Government decided to reduce expenditure on these subsidies. However, this caused mass protests from farmers that led to the Government increasing these subsidies to their previous levels. 10

(8)





SECTION C

Study Figure 1 and Extracts A, B and C in the Source Booklet before answering Question 12.

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

- 12** (a) Define the term 'public good'. (Extract A, line 13) (2)
- (b) With reference to Figure 1 and Extract A, analyse **two** factors that caused the average world price of transporting goods in shipping containers to rise rapidly. Illustrate your answer with a supply and demand diagram. (6)
- (c) With reference to Extract B, explain the difference between price inelastic supply and price elastic supply. (4)
- (d) With reference to Extract C, examine **two** external costs associated with container ships. (8)
- (e) With reference to Extract C and your own knowledge, discuss the likely benefits of subsidies paid to the manufacturers of wind sails. Illustrate your answer with a supply and demand diagram. (14)

Sources for use with Section C

Container shipping

Figure 1 Average world price of transporting goods in a shipping container, dollars per 40-foot container, March 2023 and March 2024

	Price (\$)
March 2023	2 172
March 2024	3 411

Extract A Shipping container costs rise rapidly

The shortest and cheapest shipping route from Asia to Europe and North America passes through the Red Sea and via the Suez Canal, Egypt. Between November 2023 and April 2024 there were 133 attacks by pirates on ships in the Red Sea travelling to the Suez Canal. In response, 62% of container ships diverted to an alternative route. This adds 6 550 km to the journey and takes an extra 10–15 days. The additional cost of fuel per container ship is estimated at \$1 million.

5

Additionally, other costs rose. For example, the wages of workers on container ships increased. Interest rates also increased, adding to the cost of borrowing.

Diverted ships have to travel through dangerous waters under the southern tip of Africa. There are 2 300 shipwrecks along the South African coastline. However, 45 active lighthouses along this coastline help ships through these dangerous waters. The Government of South Africa provides lighthouses as a public good.

10

Extract B The supply of container ships

With ships taking longer on journeys, more ships are required. Between 2023 and 2024 the top ten container shipping companies ordered 569 new ships. It will take 12–16 months to build one new container ship. This number of orders means that the shipping companies will have an even longer wait before the ships are received. However, only 65% of capacity on container ships is typically used.

5



Extract C Environmental impact of container ships

The transportation of goods by container ships has a number of environmental impacts:

- 2% of global CO₂ emissions come from container ships
- the low-grade fuel used by the world's 90 000 container ships contains 2 000 times the amount of sulfur compared to diesel fuel used in cars 5
- in one year, a single large container ship can emit cancer-causing and asthma-causing pollutants equivalent to that of 50 million cars
- the hum of ship engines affects marine life, disrupting communication and navigation for animals such as whales and dolphins
- oil spills, sewage and chemical waste discharged by container ships contribute to water pollution. 10

However, between 2008 and 2023, carbon emissions were reduced by 30% through measures to reduce fuel consumption.

BAR Technologies, an engineering business, has developed wind sails that can be attached to container ships. In the first trial in 2023, these wind sails helped to reduce fuel consumption. This reduced carbon emissions from each ship by 11.2 tonnes of CO₂ per day. Over one year this would be the equivalent of removing 480 cars from the roads. With such environmental benefits some economists suggest that subsidies should be paid to manufacturers of wind sails. 15

(8)





SECTION C

Study Figures 1 and 2 and Extracts A, B and C in the Source Booklet before answering Question 12.

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

- 12** (a) Define the term 'substitutes' (Extract A, line 8). (2)
- (b) Explain what is meant by the term 'inelastic supply'. Refer to Figure 1 and Extract A in your answer. (4)
- (c) Analyse why the price of vanilla increased significantly between 2014 and 2018. Refer to Figure 2 and Extract A in your answer. (6)
- Illustrate your answer with a supply and demand diagram. (6)
- (d) With reference to Extract C, examine two microeconomic effects of Finland's decision to remove the sugar tax. (8)
- (e) Discuss reasons why the 'quantity of education is below the social optimum level' (Extract B, lines 2 and 3). Refer to external benefits in your answer. (14)
- Illustrate your answer with an appropriate diagram. (14)

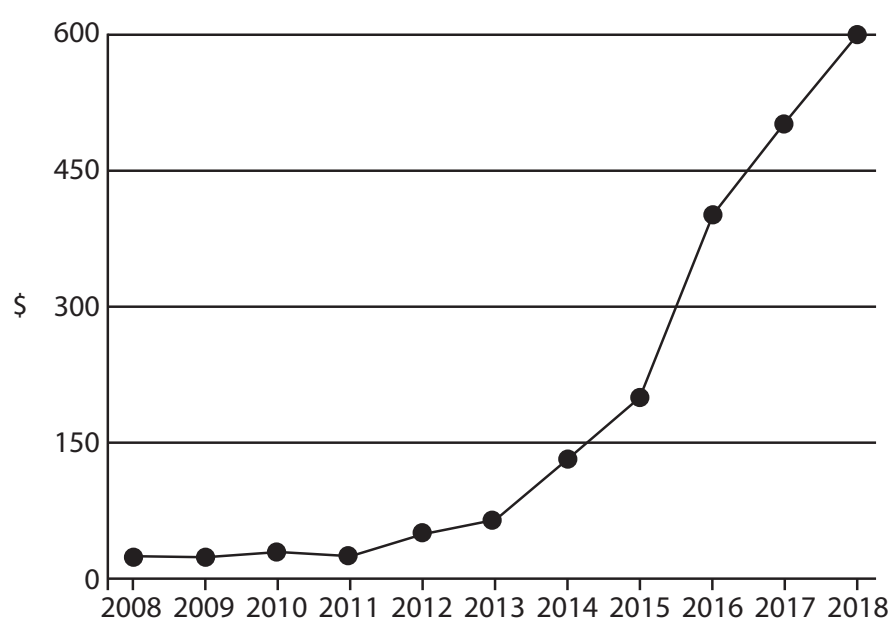
Sources for use with Section C.

The markets for vanilla, education and sugar

Figure 1 Estimated price elasticity of supply for vanilla in Madagascar and Indonesia

	Madagascar	Indonesia
Price elasticity of supply	0.48	0.52

Figure 2 US\$ price of vanilla per kilogram, 2008-2018



Extract A Vanilla price increases

Madagascar grows 80% of the world's vanilla. Few other countries have the climate to be able to grow the crop. Between 2008 and 2011 the price was so low that some vanilla growers stopped production and grew other crops instead. However, the price of vanilla increased significantly between 2014 and 2018.

5

In 2017 a cyclone in Madagascar destroyed a large quantity of the vanilla crop. As a result some farmers will not see their vanilla crops recover fully until 2020.

There are artificial substitutes for vanilla such as vanillin. However, in recent years, consumers have shown an increased preference for natural vanilla. Vanilla is a key ingredient used in ice cream, sweets, chocolate and in cosmetic products. The demand for all of these products has increased rapidly in recent years.

10

The high price attracted farmers in other countries, such as Uganda, to start growing vanilla. However, it takes three years for the plantations to mature and produce vanilla crops.

Extract B Lack of education in Madagascar

Adults in Madagascar have typically spent only 4.4 years at school. This quantity of education is below the social optimum level.

In 2012 it was estimated that 20 000 children aged 12 to 17 years old worked in the production of vanilla. This was 32% of the workforce employed in this industry. Many families need their children to work to earn an additional income. They cannot afford to lose this income by sending their children to school. Following the cyclone the price of food in Madagascar rose significantly. This increased the need for children to work.

5

Many primary schools are in a poor condition and are overcrowded. Teachers have limited or no training. Many schools are destroyed by the annual cyclones and public funds for education have been reduced.

10

Extract C Sugar tax removed in Finland

In 2011 the Government of Finland introduced an indirect tax known as a sugar tax on sweets, chocolate, ice cream and fizzy drinks. This was charged at €0.95 per kilogram or €0.11 per litre. The tax raised revenue for the government and decreased consumption of these products by approximately 5%.

5

In 2017 Finland removed the sugar tax. It had been criticised as being unfair. Manufacturers of biscuits and cakes had been unaffected by the tax giving them a competitive advantage over sweet and chocolate manufacturers. The tax revenue that would have been raised was estimated to be €109 million per year.

(e) Discuss reasons why the 'quantity of education is below the social optimum level' (Extract B, lines 2 and 3). Refer to external benefits in your answer.

Illustrate your answer with an appropriate diagram.

(14)





TOTAL FOR SECTION C = 34 MARKS

SECTION C

Study Figures 1 and 2 and Extracts A and B in the Source Booklet before answering Question 12.

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

- 12** (a) Define the term 'equilibrium' (Extract A, line 2). (2)
- (b) With reference to Extract A, explain the impact of the availability of substitutes on the price elasticity of demand for palm oil. (4)
- (c) With reference to the information provided, analyse **two** reasons why the price of palm oil decreased in 2018. (6)
- Illustrate your answer with a supply and demand diagram.
- (d) With reference to Figure 2 and Extract A, examine the likely price elasticity of supply for palm oil. (8)
- (e) With reference to Extract B, discuss the externalities associated with the production of palm oil. (14)
- Illustrate your answer with an appropriate diagram.

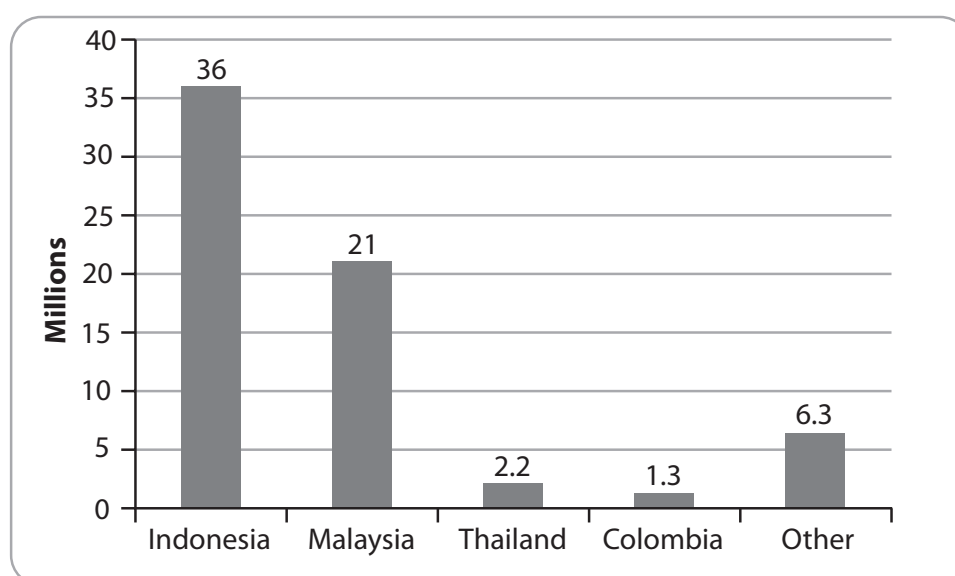
Sources for use with Section C.

The global market for palm oil

Figure 1 Price changes of selected vegetable oils, 2018

Type of vegetable oil	% price change
Palm	-25.94
Rapeseed	-12.71
Soybean	-17.75
Sunflower	-12.81

Figure 2 Global palm oil production in 2017 (million tonnes)



Extract A Palm oil price falls

The equilibrium price of palm oil decreased in 2018. The price of competing vegetable oils, including rapeseed, soybean and sunflower also fell in 2018. Palm oil is used in the production of biodiesel, a substitute for crude oil. Lower crude oil prices during 2018 caused a fall in the demand for biodiesel.

5

More palm oil was produced in 2018 than was consumed. This abundant supply led to a stockpile of three million tonnes. When first planted, palm trees can take up to 30 months to produce fruit. The fruit can then be harvested twice a year and converted into palm oil.

Extract B Palm oil production

Palm oil production more than tripled between 1998 and 2018. It is now used in many goods including processed foods, cosmetics, detergents, chocolate and biodiesel.

Palm oil requires one-tenth of the land, one-seventh of the fertiliser and only one-sixth of the energy to produce the same amount of oil as soybean. In Indonesia and Malaysia more than 4.7 million workers are employed directly in the palm oil industry. A further 11 million workers are employed indirectly.

5

The rapid and poorly managed expansion of production has caused large-scale deforestation. The clearing and burning of tropical rainforests has also caused significant greenhouse gas emissions.

10

Palm oil production in Indonesia and Malaysia has led to habitat and biodiversity loss. Endangered animals have been negatively affected. For example, between 2001 and 2017 the population of orangutans fell by 100 000 in these countries. Orangutans spend 95% of their time in trees and Indonesian rainforests have been disappearing rapidly. In western Indonesia 69% of elephant habitats have been lost and there are only 100 rhinos left in the wild.

15

(14)



Handwriting practice area with 25 horizontal dotted lines.



(Total for Question 12 = 34 marks)

TOTAL FOR SECTION C = 34 MARKS



SECTION C

Study Figure 1 and Extracts A, B and C in the Source Booklet before answering Question 12.

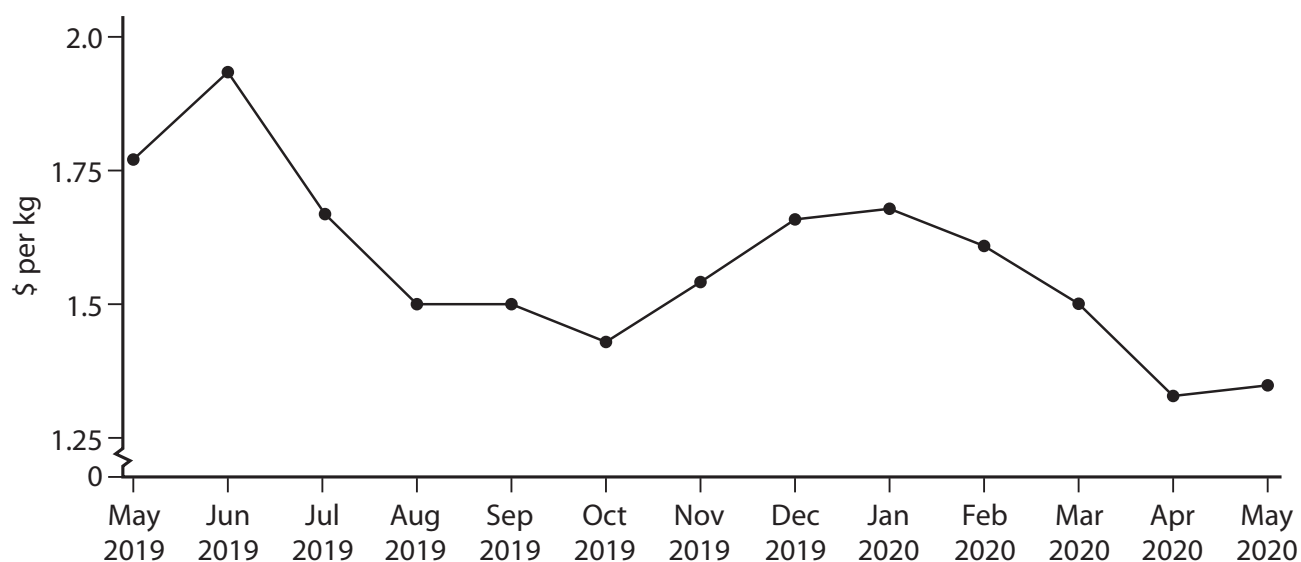
Write your answers in the space provided on the following pages.

- 12** (a) Define the term 'complementary goods' (Extract A, line 8). (2)
- (b) With reference to Figure 1 and Extract A, analyse why 'between January and May 2020 the world price of rubber fell from \$1.67 to \$1.35 per kg'.
Illustrate your answer with a supply and demand diagram. (6)
- (c) With reference to the first paragraph of Extract B, explain what is meant by 'the supply of rubber is price inelastic'. (4)
- (d) Examine the effect on producer surplus of the change in market conditions for rubber gloves as described in Extract C. Include a diagram in your answer. (8)
- (e) With reference to Extract B, discuss the external costs associated with tyre production and consumption. (14)

Sources for use with Section C.

The markets for rubber, tyres (tires) and rubber gloves

Figure 1 World price of rubber, US\$ per kg, May 2019–May 2020



Extract A Rubber price falls as car and tyre production fall

Between January and May 2020 the world price of rubber fell from \$1.67 to \$1.35 per kg. This was caused by a significant decrease in demand for tyres that are made from rubber. Tyre production uses 75% of the world's natural rubber.

Over the same period, tyre sales fell by 35% in Europe, 42% in North America and by 33% in South America. There was a large decrease in car production in all of these regions as a result of the temporary closure of car factories. Car usage also fell, resulting in fewer tyres needing to be replaced. Cars and tyres are complementary goods.

5



Extract B Rubber production and pollution from tyres

Rubber trees grow best in a climate where there is heavy rainfall and temperatures between 20°C and 35°C. Farmers in Thailand, Indonesia, China and West Africa provide 85% of the world's natural rubber supply. Rubber trees take 6 years to produce their first crop. Consequently, the supply of rubber is price inelastic. 5

Between 2000 and 2019 the demand for rubber tyres increased resulting in deforestation. 3 million hectares of forests in the Mekong region of South East Asia were lost to make space for rubber plantations.

A research study into car emissions found that tyres emitted 1 000 times more PM2.5 particles than emissions from exhaust fumes. This study was based on testing one fully loaded car and one type of road surface. 10

Long-term exposure to PM2.5 results in:

- respiratory diseases and reduced lung function in children and adults
- increased risk of lung cancer
- cardiovascular disease affecting the heart and causing strokes. 15

Further problems are caused when tyres are sent to landfill. Tyres contain chemicals and heavy metals that are released into the environment over time. These cause cancer and genetic mutations.

Tyre recycling has helped to reduce the number of tyres in landfill from one billion in 1991 to 60 million in 2018. In the USA 43% of the recycled tyres are used to produce energy. These recycled tyres produce 25% more energy than coal. The ash from the tyres is less polluting than burning coal. 20

Extract C Profits of manufacturers of rubber gloves

Rapidly rising demand for rubber gloves across the world enabled the Malaysian rubber glove manufacturer, Top Glove, to achieve a 366% increase in profits in the second quarter of 2020. This was caused by a substantial increase in sales of rubber gloves to the healthcare sector. 5

(14)





TOTAL FOR SECTION C = 34 MARKS



SECTION C

Study Figure 1 and Extracts A, B and C in the Source Booklet before answering Question 12.

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

- 12** (a) Define the term 'supply' (Extract A, line 8). (2)
- (b) With reference to Extract A, explain **one** advantage of Apple using energy produced from renewable resources. (4)
- (c) With reference to Figure 1 and Extract B, analyse **two** reasons why the 'world price of lithium increased by 191%' (Extract B, line 2).
Illustrate your answer with a supply and demand diagram. (6)
- (d) With reference to the last paragraph of Extract C, examine **two** likely effects on smartphone manufacturers of the growth in the market for refurbished smartphones. (8)
- (e) With reference to Extract C, discuss the microeconomic effects of the increase in smartphone manufacturing between 2011 and 2021. Refer to external costs in your answer.
Illustrate your answer with an externalities diagram. (14)

Sources for use with Section C

Renewables, lithium and smartphones

Extract A Apple's renewable commitment

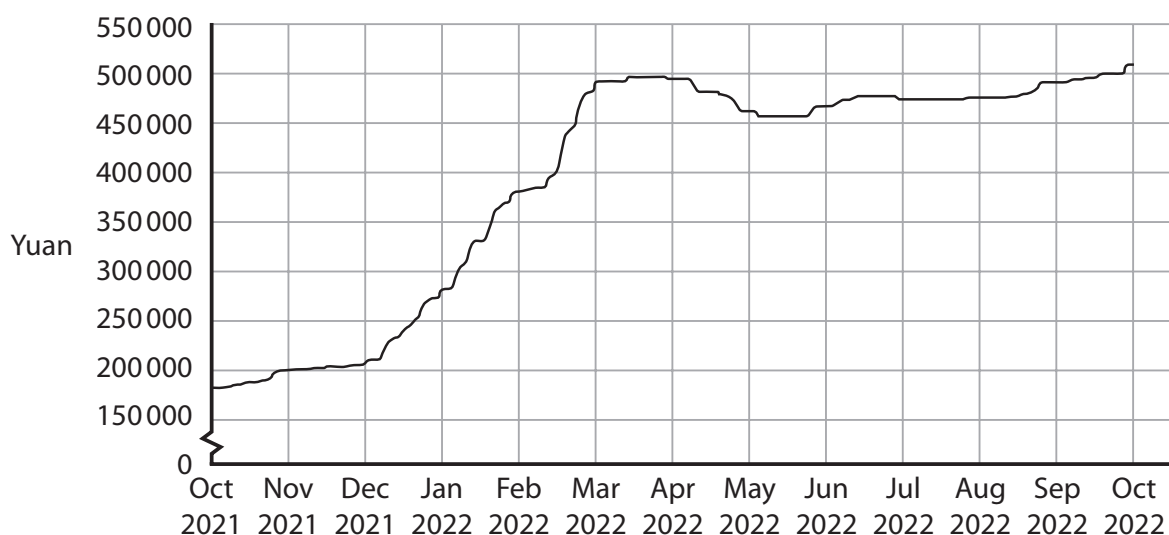
In 2020 100% of the energy used directly by Apple was from renewable resources. In 2022 it announced that 213 of its suppliers had agreed to use only renewable resources to power production. Examples of Apple's commitment to renewable energy include:

- investment in a 2 300 acre solar project in Texas
- a data centre in Denmark powered by a solar park and wind farm
- Apple's supplier, Keiwa, in Japan using renewable energy from a wind farm.

5

The global supply of energy produced from renewable resources is expected to increase by 8% in 2022.

Figure 1 World price of lithium, yuan per tonne, October 2021 to October 2022



Extract B Demand for lithium

Between October 2021 and October 2022 the world price of lithium increased by 191%. Lithium production increased by 20% but demand increased by significantly more.

With rising oil prices many consumers switched from petrol and diesel cars to electric cars. These electric vehicles require lithium in the batteries. In 2021 global sales of electric vehicles increased by 108% to 6.75 million and in China sales grew by 157.5%. Sales of smartphones, that also use lithium batteries, increased by 11.4% in 2021 to 1.5 billion. 5

Extract C Smartphone manufacturing

Between 2011 and 2021 smartphone production increased from 472 million to 1 433 million. Globally 4.5 billion people owned a smartphone by the end of 2022. In 2022 smartphones will produce 146 million tonnes of CO₂ emissions which is 0.5% of global carbon emissions. These emissions are produced in the manufacturing, transportation, usage and recycling of smartphones. 5

Smartphone devices contain several precious and rare earth metals. The environmental costs of mining these metals can be significant. Extracting iron, aluminium and copper produces huge amounts of liquid and solid waste. For example, in 2015 33 billion litres of waste was spilt from an iron ore mine in Minas Gerais, Brazil. In addition, mining gold is a major cause of deforestation. 10

Smartphone manufacturers are producing phones which last longer but are more expensive. As a result consumers do not replace their smartphones so frequently. The market for smartphones that have been refurbished* is forecast to be worth \$65 billion by 2024. Typically, a consumer can sell a one-year-old smartphone for 50% of its original price. The manufacturer can sell the same refurbished smartphone for 80% of its original price. Unwanted smartphones in developed countries are desired in emerging countries. 15

* a refurbished smartphone is one that has been repaired and rebuilt.

(e) With reference to Extract C, discuss the microeconomic effects of the increase in smartphone manufacturing between 2011 and 2021. Refer to external costs in your answer.

Illustrate your answer with an externalities diagram.

(14)





92

SECTION C

Study Figure 1 and Extracts A, B and C in the Source Booklet before answering Question 12.

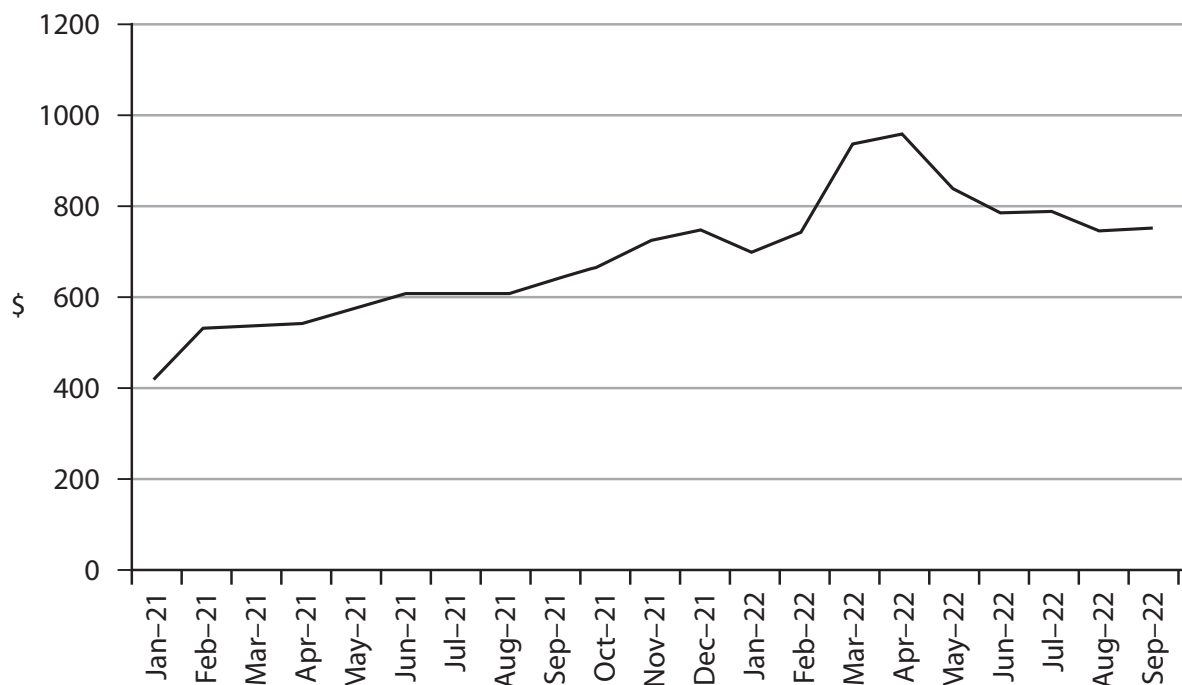
Write your answers in the space provided on the following pages.

- 12** (a) Define the term 'tradeable pollution permit scheme'. (Extract B, line 16) (2)
- (b) With reference to Extract B, explain whether the supply of phosphate rock is likely to be price elastic or price inelastic. (4)
- (c) With reference to Figure 1 and Extract A, analyse **one** demand factor *and* **one** supply factor that caused the price of fertiliser to increase between January 2021 and April 2022. (6)
- Illustrate your answer with a supply and demand diagram.
- (d) With reference to Extract C, examine **two** likely effects of the subsidies paid by Canada's Government to farmers who use more organic farming methods. (8)
- (e) With reference to Extract B, discuss the external costs associated with the production and the use of fertiliser. (14)
- Illustrate your answer with an appropriate diagram.

Sources for use with Section C

The market for fertiliser

Figure 1 World price of fertiliser, \$ per tonne, January 2021 to September 2022



Extract A Demand and supply

Higher crop prices in 2021 provided an incentive for farmers to increase the quantity of crops that they grew. As a result, the demand for fertiliser increased by 6.3% compared with 2020.

Another reason for the increase in demand for fertiliser was that governments paid subsidies to farmers during the global health crisis. These subsidies encouraged farmers to grow more crops.

5

Poor weather caused some factories that manufacture fertiliser to shut down for several weeks. For example, winter storms and Hurricane Ida disrupted production in the USA. Costs of production also rose as a result of a significant increase in the world price of gas.

10

Extract B Fertiliser production and its use

Between 1960 and 2019 there was a ten-fold increase in the use of fertiliser by farmers to increase agricultural output. Over the same period crop production increased four-fold. Fertiliser is produced by applying acids to phosphate rock. Phosphate rock is a finite resource and the amount available is decreasing. 5
In addition, the production of fertiliser requires the substantial use of non-renewable resources such as gas and coal. This results in greenhouse gas emissions. Consequently, fertiliser production is responsible for 1% of total global energy use and 1.4% of total carbon emissions.

The fertilisers that are used on farmland are often washed into rivers and lakes. 10
This causes algae to develop and oxygen levels to decrease, resulting in a decline in fish stocks.

85% of the world's supply of phosphate rock comes from just five countries. Morocco produces 70% of total production.

France and Germany are the largest fertiliser manufacturers in the European Union. 15
The European Union's tradeable pollution permit scheme applies to fertiliser manufacturers in these countries.

Extract C Subsidies in Canada

Since 1990 the production and use of fertilisers have accounted for approximately 10% of Canada's greenhouse gas emissions. To reach its 2030 greenhouse gas emissions target, Canada needs to reduce its use of fertiliser. Canada's Government is providing subsidies of CA\$ 750 million to farmers over 10 years to use more organic 5
farming methods to achieve this target.

Illustrate your answer with an appropriate diagram.



Handwriting practice area with 25 horizontal dotted lines.



98

SECTION C

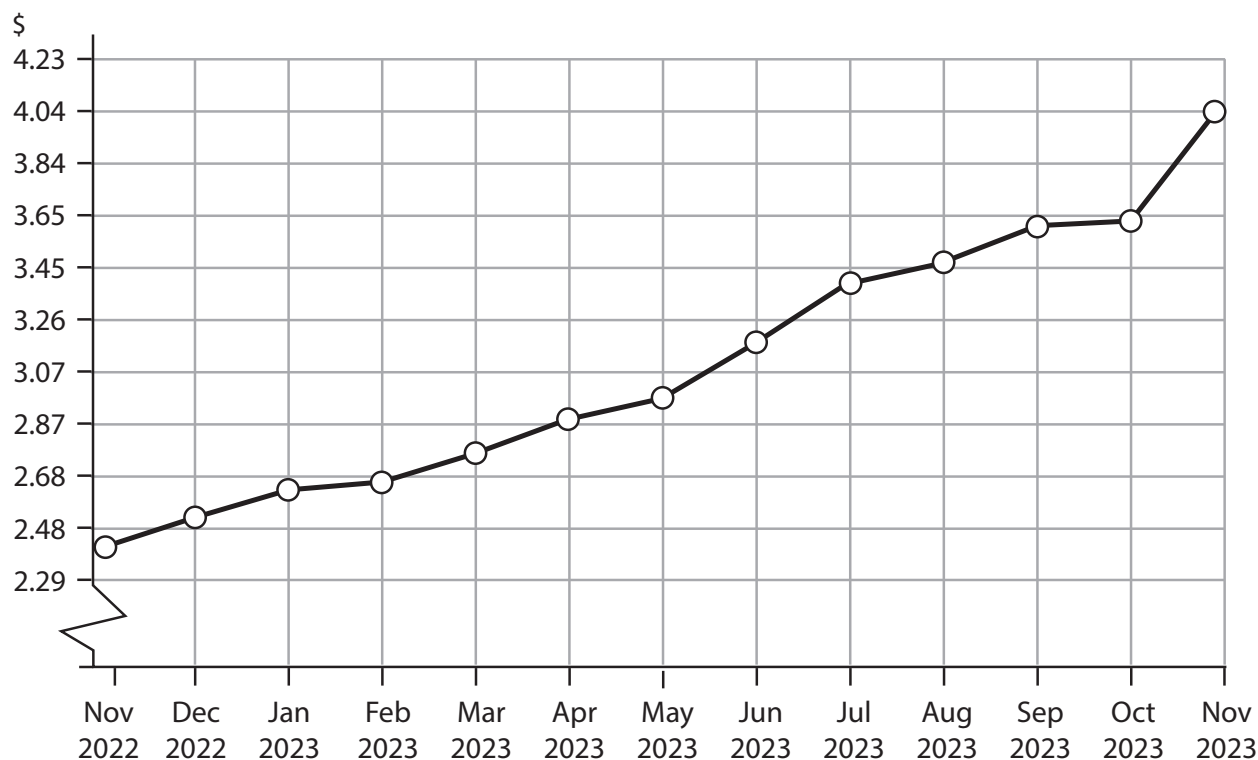
Study Figures 1 and 2 and Extracts A, B and C in the Source Booklet before answering Question 12.

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

- 12** (a) Define the term 'forward market'. (Extract A, line 10) (2)
- (b) With reference to Figure 1 and Extract A, analyse **one** supply factor and **one** demand factor that caused the price of cocoa to increase by approximately 68% between November 2022 and November 2023. (6)
- Illustrate your answer with a supply and demand diagram.
- (c) With reference to Figure 2, explain the term 'price inelastic supply'. Refer to the short-run and the long-run in your answer. (4)
- (d) With reference to Extract C, examine **two** effects of the Government of Ghana's decision to end the subsidies paid to cocoa farmers. (8)
- (e) With reference to Extract B, discuss the likely external costs associated with cocoa production. (14)
- Illustrate your answer with an externalities diagram.

Sources for use with Section C.

The cocoa market

Figure 1 World price of cocoa, dollars per kilogram, November 2022 to November 2023**Extract A Cocoa price rises rapidly**

By November 2023 cocoa prices were at their highest level for 46 years. Between November 2022 and November 2023 prices increased by approximately 68%.

Côte d'Ivoire, the world's largest grower, experienced a 36.3% decrease in production compared to the previous year. Flooding and swollen shoot disease on cocoa farms caused this significant fall in cocoa production.

5

More cocoa has been required by the chocolate and drinking chocolate markets. There is growing evidence of the health benefits of cocoa so chocolate makers and drinking chocolate makers have been increasing the cocoa content in their products.

The forward market price for cocoa for six months' time more than doubled between April 2023 and April 2024.

10

Figure 2 Estimated price elasticity of supply for cocoa

	Estimated elasticity
Short-run price elasticity of supply	+0.07
Long-run price elasticity of supply	+0.57

Extract B The true cost of cocoa production

Cocoa farming has resulted in the loss of large areas of rainforest. Over the last three decades the increase in cocoa farming has resulted in a 70% loss of the forests in Ghana and Côte d'Ivoire.

Between 2014 and 2019 the use of pesticides in the production of cocoa increased by 20% in Ghana and Côte d'Ivoire. These pesticides are often highly hazardous and may cause cancer. In addition, they can pollute drinking water and rivers. 5

The percentage of earnings for each sector involved in the chocolate market is as follows:

- Cocoa farmers 6.6%
- Transport businesses 2.1% 10
- Processors 7.6%
- Marketing businesses 4.3%
- Chocolate manufacturers 35.2%
- Retailers 44.2%

Many cocoa farmers have difficulty in meeting their basic needs. Some are even unable to afford sufficient food, shelter or clothing. As farmers struggle to survive financially, many now employ children. Between 2009 and 2019 the percentage of workers on cocoa plantations who were children increased from 5% to 24% in Ghana and Côte d'Ivoire. 15

Extract C Subsidies for cocoa farmers in Ghana

Between 2019 and 2020 the Government of Ghana increased the amount it spent subsidising cocoa farmers from \$200 million to \$400 million. The funds were paid to enable farmers to purchase fertiliser and to ensure that farmers' incomes were not too low. However, the Government found it difficult to fund these payments to cocoa farmers and it decided to end these subsidies in 2023. 5

Illustrate your answer with an externalities diagram.





(Total for Question 12 = 34 marks)

TOTAL FOR SECTION C = 34 MARKS



SECTION D

Answer ONE question from this section.

Write your answer in the space provided.

EITHER

- 13** The Government of Finland plans to offer a subsidy of €400 for each purchase of an electric bicycle. The aim is to encourage cycling to reduce the use of motor cars.

Evaluate the economic effects of subsidising electric bicycles.

(Total for Question 13 = 20 marks)

OR

- 14** In 2007, 97% of Ukrainian children received the measles vaccination but in 2016 this had fallen to 42%. In 2016 there were 102 cases of measles but in the first 10 months of 2017 the number increased to 2 381.

Evaluate the private benefits and external benefits of children receiving the measles vaccination.

(Total for Question 14 = 20 marks)



SECTION D

Answer ONE question from this section.

Write your answer in the space provided.

EITHER

- 13** In November 2020 the Government of Sri Lanka introduced a maximum price of Rs 80 per kilogram for white rice. This price was below the market price.

Evaluate the impact of imposing this maximum price on the market for white rice in Sri Lanka.

(Total for Question 13 = 20 marks)

OR

- 14** In 2019 the proportion of 25 to 34-year-old people who had received university education was 70% in South Korea. In contrast it was 50% in the USA and only 28% in Italy.

Evaluate possible microeconomic reasons why education might be underconsumed.

(Total for Question 14 = 20 marks)



SECTION D

Answer ONE question from this section.

Write your answer in the space provided.

EITHER

- 13** In 2015 the Government of South Korea introduced a tradeable pollution permit scheme. This scheme applies to 70% of all businesses and includes power generation, manufacturing and domestic aviation.

Evaluate the possible benefits of introducing a tradeable pollution permit scheme.

(Total for Question 13 = 20 marks)

OR

- 14** Between 2012 and 2021 government spending on education per person per year in high-income countries increased from \$7 507 to \$8 515. In low-income countries the increase was from \$42 to \$56 per person.

Evaluate the microeconomic benefits of increased spending on education.

(Total for Question 14 = 20 marks)



SUB-TOPIC 1.3.5.3

NON-PROVISION OF PUBLIC GOODS

Sub-topic 1.3.5.3 · 10 questions · 68 marks · lowest tariff first



SECTION A

Answer ALL questions in this section.

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

- 1 Which **one** of the following combinations of characteristics best describes private goods?

- ☐ A Rival and excludable
- ☐ B Rival and non-excludable
- ☐ C Non-rival and excludable
- ☐ D Non-rival and non-excludable

(Total for Question 1 = 1 mark)

- 2 It was estimated that the price elasticity of demand for cereals was -0.6 and for fruit it was -0.7 .

Which **one** of the following factors is most likely to cause demand for a product to be price inelastic?

- ☐ A There are legal constraints on manufacturing the product
- ☐ B There are large stocks of the product available
- ☐ C The product has many substitutes
- ☐ D The product lacks substitutes

(Total for Question 2 = 1 mark)



SECTION A

Answer ALL questions in this section.

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

1 Which **one** of the following is a characteristic of symmetric information?

- ☐ A Buyers have more information than sellers
- ☐ B Sellers have more information than buyers
- ☐ C Buyers and sellers have the same level of information
- ☐ D Buyers and sellers experience market failure

(Total for Question 1 = 1 mark)

2 70 million citizens in Bangladesh live in areas where there is a risk of flooding.

The Government of Bangladesh plans to spend \$400 billion to build 600 kilometres of sea defences.

Sea defences are an example of which **one** of the following?

- ☐ A Consumer goods
- ☐ B Free goods
- ☐ C Private goods
- ☐ D Public goods

(Total for Question 2 = 1 mark)

3 The cross elasticity of demand for Pepsi Cola with respect to a change in the price of Coca-Cola is estimated to be +0.62 in North America.

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

- ☐ A Pepsi Cola and Coca-Cola are complements
- ☐ B Pepsi Cola and Coca-Cola are substitutes
- ☐ C Pepsi Cola and Coca-Cola are unrelated goods
- ☐ D Pepsi Cola and Coca-Cola are normal goods

(Total for Question 3 = 1 mark)



SECTION C

Study Figure 1 and Extracts A, B and C in the Source Booklet before answering Question 12.

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

- 12** (a) Define the term 'public good'. (Extract A, line 13) (2)
- (b) With reference to Figure 1 and Extract A, analyse **two** factors that caused the average world price of transporting goods in shipping containers to rise rapidly. Illustrate your answer with a supply and demand diagram. (6)
- (c) With reference to Extract B, explain the difference between price inelastic supply and price elastic supply. (4)
- (d) With reference to Extract C, examine **two** external costs associated with container ships. (8)
- (e) With reference to Extract C and your own knowledge, discuss the likely benefits of subsidies paid to the manufacturers of wind sails. Illustrate your answer with a supply and demand diagram. (14)



Sources for use with Section C

Container shipping

Figure 1 Average world price of transporting goods in a shipping container, dollars per 40-foot container, March 2023 and March 2024

	Price (\$)
March 2023	2 172
March 2024	3 411

Extract A Shipping container costs rise rapidly

The shortest and cheapest shipping route from Asia to Europe and North America passes through the Red Sea and via the Suez Canal, Egypt. Between November 2023 and April 2024 there were 133 attacks by pirates on ships in the Red Sea travelling to the Suez Canal. In response, 62% of container ships diverted to an alternative route. This adds 6 550 km to the journey and takes an extra 10–15 days. The additional cost of fuel per container ship is estimated at \$1 million.

5

Additionally, other costs rose. For example, the wages of workers on container ships increased. Interest rates also increased, adding to the cost of borrowing.

Diverted ships have to travel through dangerous waters under the southern tip of Africa. There are 2 300 shipwrecks along the South African coastline. However, 45 active lighthouses along this coastline help ships through these dangerous waters. The Government of South Africa provides lighthouses as a public good.

10

Extract B The supply of container ships

With ships taking longer on journeys, more ships are required. Between 2023 and 2024 the top ten container shipping companies ordered 569 new ships. It will take 12–16 months to build one new container ship. This number of orders means that the shipping companies will have an even longer wait before the ships are received. However, only 65% of capacity on container ships is typically used.

5

Extract C Environmental impact of container ships

The transportation of goods by container ships has a number of environmental impacts:

- 2% of global CO₂ emissions come from container ships
- the low-grade fuel used by the world's 90 000 container ships contains 2 000 times the amount of sulfur compared to diesel fuel used in cars 5
- in one year, a single large container ship can emit cancer-causing and asthma-causing pollutants equivalent to that of 50 million cars
- the hum of ship engines affects marine life, disrupting communication and navigation for animals such as whales and dolphins
- oil spills, sewage and chemical waste discharged by container ships contribute to water pollution. 10

However, between 2008 and 2023, carbon emissions were reduced by 30% through measures to reduce fuel consumption.

BAR Technologies, an engineering business, has developed wind sails that can be attached to container ships. In the first trial in 2023, these wind sails helped to reduce fuel consumption. This reduced carbon emissions from each ship by 11.2 tonnes of CO₂ per day. Over one year this would be the equivalent of removing 480 cars from the roads. With such environmental benefits some economists suggest that subsidies should be paid to manufacturers of wind sails. 15

1

12 (a) Define the term 'public good'. (Extract A, line 13)

(2)

.....

.....

.....

.....

.....

.....



With reference to the provision of street lights, explain what is meant by the term 'public good'.

(Total for Question 8 = 4 marks)



9 Most of the Netherlands is below sea level and is therefore liable to flooding. The Dutch Government spends €1 billion per year on flood defences.

Explain **one** reason for the provision of this public good by the Dutch Government.

(Total for Question 9 = 4 marks)



9 Between 2017 and 2022 the Singapore Government replaced 95 000 streetlights along its roads.

Explain **one** microeconomic reason why the Singapore Government provides streetlights.

(Total for Question 9 = 4 marks)



- 9** In 2022 there were 24 300 lighthouses globally. Between 2013 and 2022 the number of losses of ships at sea fell from 109 to 38.

With reference to lighthouses, explain the difference between 'non-rivalry' and 'non-excludability'.

(Total for Question 9 = 4 marks)



SECTION C

Study Figure 1 and Extracts A, B and C in the Source Booklet before answering Question 12.

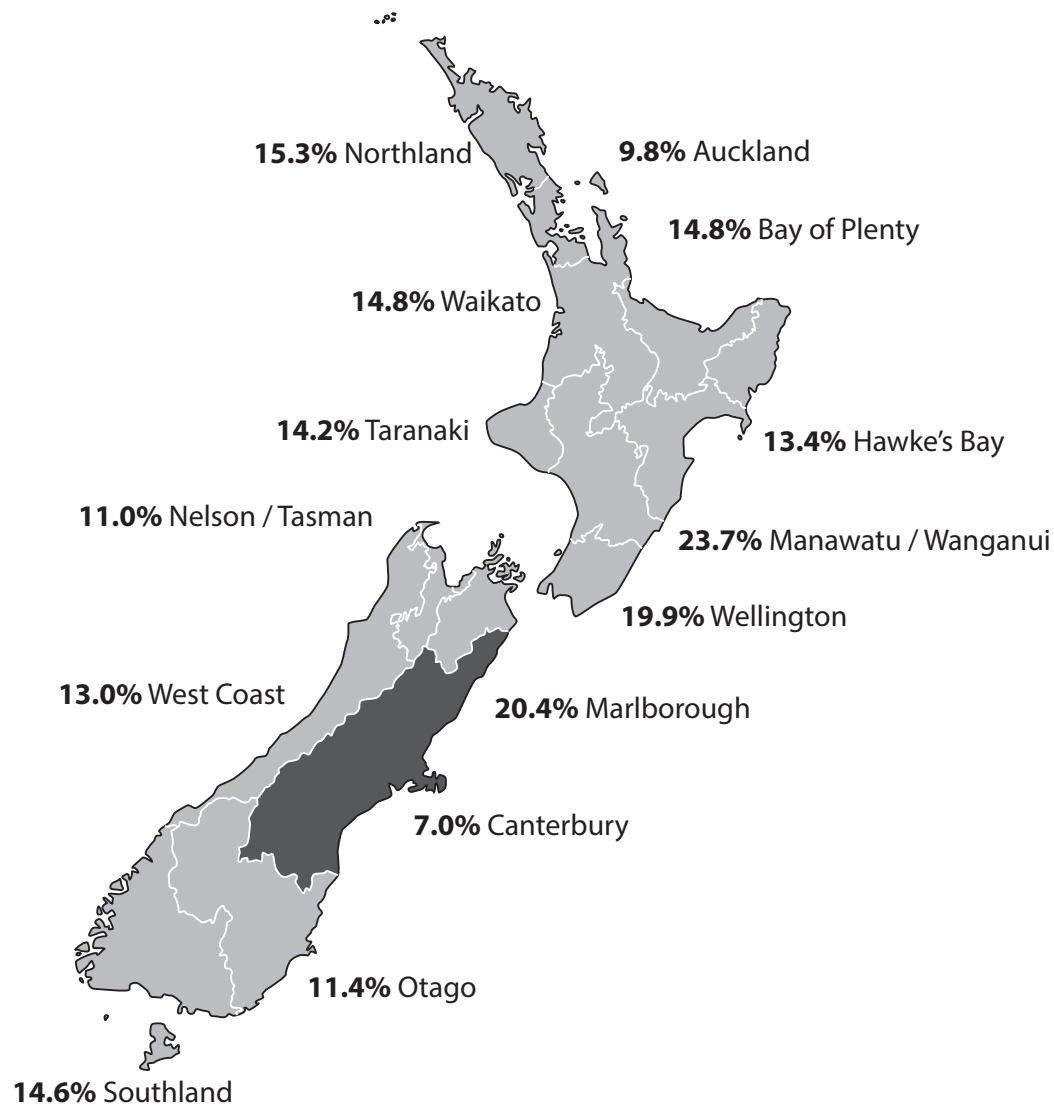
Write your answers in the space provided on the following pages.

- 12** (a) Define the term 'market failure' (Extract A, line 14). (2)
- (b) With reference to paragraph 1 of Extract A, analyse **two** reasons why house prices increased between March 2020 and March 2021.
Illustrate your answer with a supply and demand diagram. (6)
- (c) With reference to Extract B, explain why the supply of new houses is likely to be price inelastic. (4)
- (d) With reference to Extract C, examine whether national parks in New Zealand are public goods. (8)
- (e) With reference to Figure 1, Extract A and Extract B, discuss the likely microeconomic effects of a housing market bubble in New Zealand. (14)



Sources for use with Section C

New Zealand's housing market and national parks

Figure 1 Percentage change in house prices between March 2020 and March 2021, by region

Extract A Rapid increase in house prices

House prices in New Zealand increased by 15.7% between March 2020 and March 2021. The average house price had risen to NZ\$925 000. This increase in house prices was caused by increasing real incomes, low interest rates and a rise in immigration following the global health crisis. Real incomes increased as a result of an above average rate of economic growth. Between March 2020 and March 2021 the base interest rate in New Zealand was just 0.25%, making it relatively cheap to borrow to purchase houses. 5

Research showed that house prices in New Zealand were about 40% overvalued relative to income. House prices were rising faster than real incomes and were 8.6 times median income in 2020 and 10 times median income in 2021. In Auckland, the average property price increased to NZ\$1.4 million in 2021. This was 35 times median income. 10

According to New Zealand's Prime Minister, Jacinda Ardern, many buyers are speculators. In 2020 approximately 15 000 people buying houses owned five or more. She is worried that the speculators could cause a dangerous housing bubble and market failure. She is also concerned that 1% of the population are homeless, the highest rate of homelessness amongst developed countries. 15

Between 2000 and 2021 house prices increased by 256% in New Zealand. By comparison, house prices in the USA increased by 68% and in the UK by 110%.

Extract B House building in New Zealand

In 2017 the Government promised to build 100 000 new homes. Between June 2018 and July 2020 the Government built just 6 000 homes. It is expensive to build houses and there is much paperwork needed to obtain planning permission. Many local authorities limit the land on which houses can be built in order to protect the environment. There is a shortage of over 55 000 construction workers. 5

Between 2011 and 2020 the average annual growth rate in housebuilding was 13%. However, in 2021, the significant increase in house prices created an incentive to build new houses. Consequently, the number of new houses under construction increased by 26%. 10

Extract C New Zealand's national parks

New Zealand has 13 national parks covering 30 000 km² that the public can explore on foot, by boat, car or air. For much of the year there is so much space that an individual will rarely meet another person. However, in the summer season the national parks are very popular. This means that the national parks become more crowded and car parking spaces are hard to find. 5

Some activities within the national parks, such as skiing and kayaking, have to be paid for. However, individuals can walk, run or cycle across the national parks without charge.

(8)



This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins or other markings on the paper.

SECTION D

Answer ONE question from this section.

Write your answer in the space provided.

EITHER

- 13** In 2016 it was reported that 50% of gas and electricity consumers in the UK have never switched energy suppliers. It is claimed that those consumers who did switch suppliers saved up to £200 each per year.

Evaluate the reasons why many consumers do not switch energy suppliers.

(Total for Question 13 = 20 marks)

OR

- 14** In 2017 floods in Bangladesh resulted in 8 million people having to move from their homes. 100 000 houses were destroyed and many crops were lost. The Institute of Water and Flood Management claim that there had been an under-investment in flood defences.

Evaluate reasons for this under-investment in flood defences. Make reference to public goods in your answer.

(Total for Question 14 = 20 marks)



SECTION D

Answer ONE question from this section.

Write your answer in the space provided.

EITHER

- 13** In 2020 the Fraser Institute identified Hong Kong as being the closest to a free market economy in the world. This was based on Hong Kong's low tax rates, low government spending and the low level of business regulation.

Evaluate the advantages of a free market economy.

(Total for Question 13 = 20 marks)

OR

- 14** The Government of the United Arab Emirates provides its citizens with free primary and secondary education and free healthcare. In 2020 the Government announced that it would spend \$136 million on flood defences and that it will build the world's tallest lighthouse in Dubai.

Evaluate the advantages of state provision of goods and services.

(Total for Question 14 = 20 marks)



SUB-TOPIC 1.3.5.4

IMPERFECT MARKET INFORMATION

Sub-topic 1.3.5.4 · 6 questions · 71 marks · lowest tariff first



SECTION A

Answer ALL questions in this section.

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

1 Which **one** of the following is a characteristic of symmetric information?

- ☐ A Buyers have more information than sellers
- ☐ B Sellers have more information than buyers
- ☐ C Buyers and sellers have the same level of information
- ☐ D Buyers and sellers experience market failure

(Total for Question 1 = 1 mark)

2 70 million citizens in Bangladesh live in areas where there is a risk of flooding.

The Government of Bangladesh plans to spend \$400 billion to build 600 kilometres of sea defences.

Sea defences are an example of which **one** of the following?

- ☐ A Consumer goods
- ☐ B Free goods
- ☐ C Private goods
- ☐ D Public goods

(Total for Question 2 = 1 mark)

3 The cross elasticity of demand for Pepsi Cola with respect to a change in the price of Coca-Cola is estimated to be +0.62 in North America.

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

- ☐ A Pepsi Cola and Coca-Cola are complements
- ☐ B Pepsi Cola and Coca-Cola are substitutes
- ☐ C Pepsi Cola and Coca-Cola are unrelated goods
- ☐ D Pepsi Cola and Coca-Cola are normal goods

(Total for Question 3 = 1 mark)



SECTION C

Study Extracts A, B and C and Figures 1 and 2 in the Source Booklet before answering Question 12.

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

- 12** (a) Define the term 'information gap' (Extract B, line 3). (2)
- (b) Explain what is meant by 'positive economic statements'. Include **two** examples from the extracts to support your answer. (4)
- (c) Analyse **one** reason why 'the price of plastic waste material fell by more than 40%' (Extract A, line 2). (6)
- Illustrate your answer with a supply and demand diagram.
- (d) With reference to Extract B, examine the external costs associated with the consumption and disposal of plastic bags. (8)
- (e) With reference to Extract C, Figure 1 and Figure 2, discuss the microeconomic impact of the introduction of an indirect tax on plastic bags. (14)
- Illustrate your answer with an appropriate diagram.

Sources for use with Section C.

The market for plastics

Extract A Plastic waste prices fall

During 2017 the price of plastic waste material fell by more than 40%. This was mainly caused by China imposing a ban on the import of plastic waste. The loss of such a large market caused a decrease in the average price from £373 per tonne in February to £215 per tonne in December. This is the price paid by the businesses who recycle the waste material. 5

Craig Curtis, Managing Director of CS Recycling, commented that there were now dramatically fewer buyers for the plastic waste.

Extract B Plastic bags damaging the environment

Plastic bags have a significant impact on the environment. However, there appears to be an information gap since many people are not aware of the harmful effects caused by the disposal of plastic bags. These include:

- Plastic bags break down into smaller and smaller toxic pieces 5
- A plastic bag takes between 400 to 1 000 years to break down
- As it breaks down, plastic particles contaminate soil and waterways
- Plastic bags cause over 100 000 marine animal deaths every year
- Nearly 90% of the debris in our oceans is plastic
- Some of the food humans eat may be contaminated with toxins from plastic. 10

Extract C Reducing plastic bag use in the European Union (EU)

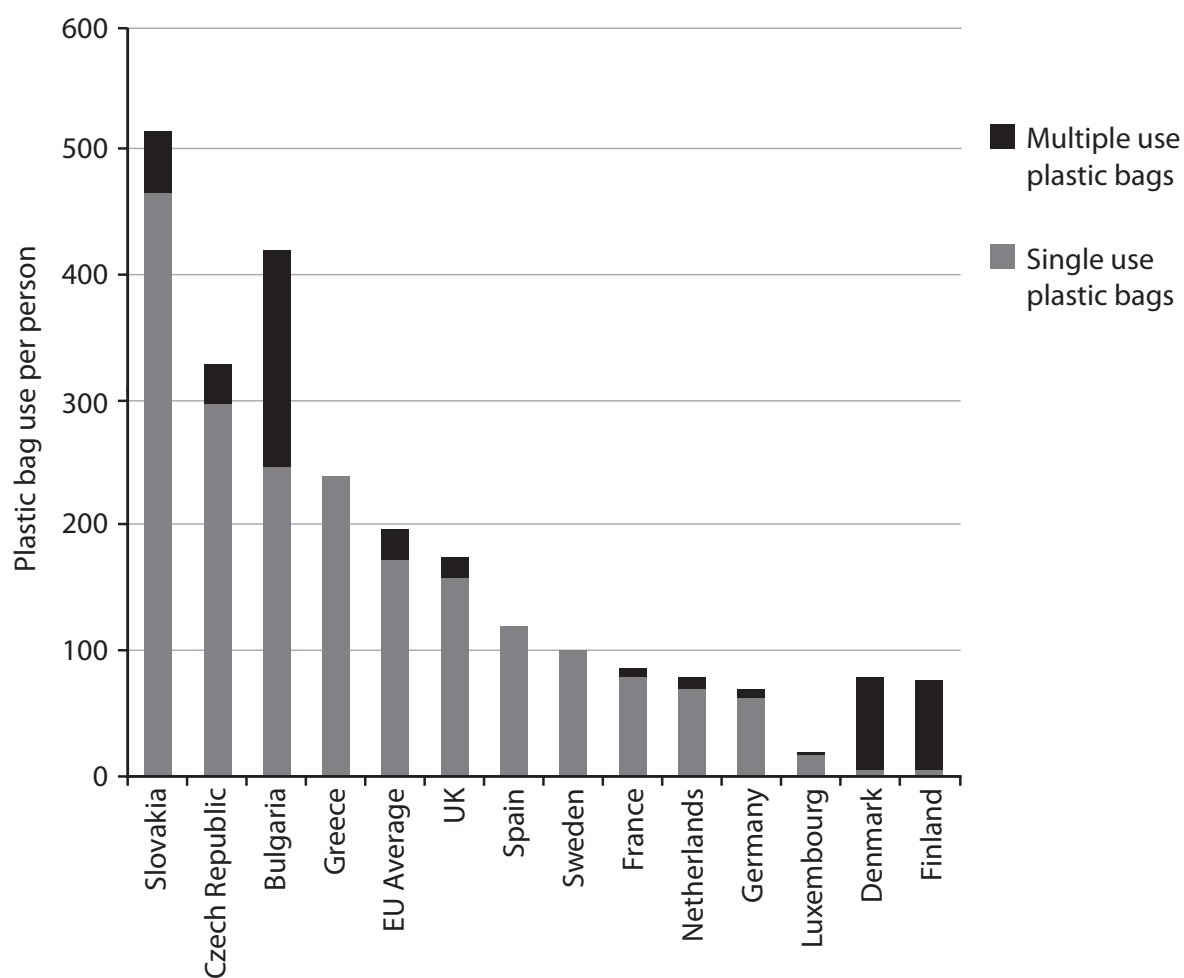
The yearly consumption of plastic carrier bags in the EU is nearly 100 billion. 92% of these are single use carrier bags. Around 3% of the marine litter in Europe is shopping bags.

In 1994 Denmark introduced a plastic bag tax of €0.27 per bag which supermarkets have passed onto consumers. However, clothing shops do not charge consumers for the bags and pay the tax themselves. In the year before the tax was introduced 800 million bags were used and in the year after the tax this dropped to 400 millions bags. The Danish Government found the tax on plastic bags raised just 0.03% of total tax revenue in 1995 and by 2014 this had fallen to 0.02%. 5

In January 2018 Greece introduced a plastic bag tax of €0.04 per bag. This resulted in a 75% decrease in the use of plastic bags compared with January 2017. Sales of reusable shopping bags increased by 5 000%. It is estimated that the average consumer will now only use 110 plastic bags per year. The EU target is 90 bags per person per year. 10

Figure 1 Revenues from the tax on plastic bags for Denmark

Year	Tax revenue
1995	€21 564 000
2000	€23 779 000
2005	€25 723 000
2010	€26 818 000
2015	€24 547 000

Figure 2 Plastic bag use per person in selected countries, 2010

SECTION C

Study Figure 1 and Extracts A, B and C in the Source Booklet before answering Question 12.

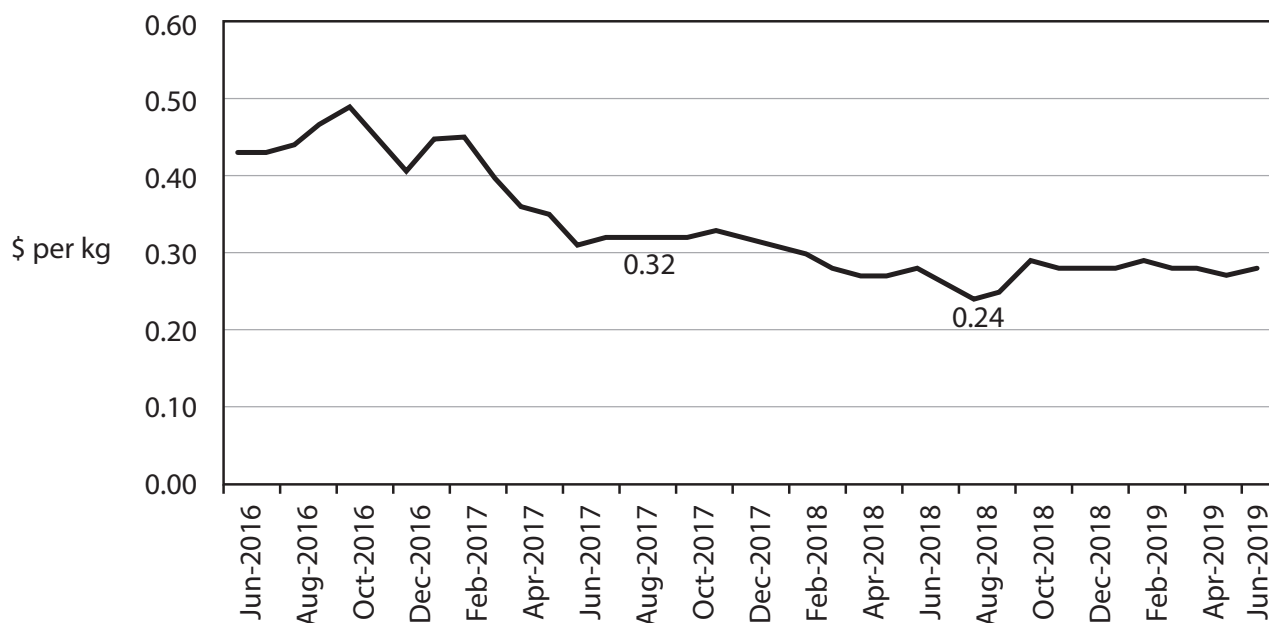
Write your answers in the space provided on the following pages.

- 12** (a) Define the term 'substitutes' (Extract A, line 9). (2)
- (b) With reference to Extract A, explain **one** factor that is likely to influence the price elasticity of supply for sugar. (4)
- (c) With reference to Figure 1 and Extract A, analyse **two** reasons why the world price of sugar fell between August 2017 and August 2018. (6)
- Illustrate your answer with a supply and demand diagram.
- (d) With reference to Extract B, examine **two** possible effects of information gaps on the consumption of sugar. (8)
- (e) With reference to Extract C, discuss the likely effects of the increase in the subsidy for sugar production. (14)
- Illustrate your answer with an appropriate diagram.

Sources for use with Section C.

The market for sugar

Figure 1 World price of sugar, US\$ per kg, June 2016 – June 2019



Extract A Global production of sugar

Between August 2017 and August 2018 the world price of sugar fell as a result of favourable weather leading to good harvests. In 2018, India, the world's second largest sugar producer and Thailand, the world's fourth largest sugar producer, had record levels of production. In 2018 global production was 11% higher than in 2017. In 2018 world production was so high that there was a surplus of 17 million tonnes. This led to large quantities of sugar being held in storage.

5

In recent years, consumption of sugar has fallen because of increasing health concerns. There is also competition from substitutes such as artificial sweeteners. In the USA, Europe, China and Australia sugar consumption has fallen or remained unchanged.

10

Sugar is grown in 119 countries. It takes sugar cane one year to mature in countries with warm temperatures and two years in cooler countries.



Extract B Overconsumption of sugar

In the USA the recommended maximum amount of sugar consumption is 50 grams per day. In the USA average consumption is 73 grams per day. The human body can comfortably process 25 grams a day. However, any sugar consumption in excess of 25 grams per day will normally be processed into body fat. This is contributing to obesity. 5
One study found that a high sugar diet increased the risk of heart disease by 38%.
Another study found that excess sugar consumption caused an increased risk of many types of cancer. A further study found that men who consumed 67 grams or more of sugar per day were 23% more likely to experience depression than men who consumed less than 40 grams per day. 10

Extract C Indian subsidy for sugar production

The Indian Government subsidises sugar growers that export sugar. Before the subsidy, exports were 620 000 tonnes per year. After the subsidy was introduced exports rose to 3.3 million tonnes per year, helping to make India the world's second largest producer of sugar. The size of the subsidy will increase from 55 rupees a tonne in 2018 to 138 rupees a tonne in 2019. This increase in subsidy is expected to increase exports to over seven million tonnes per year. Production in India was 20.3 million tonnes in 2017 and increased to 33.0 million tonnes in 2019. 5

The Governments' of Brazil and Australia have complained to the World Trade Organization that these subsidies give Indian producers an unfair advantage. They argue that these subsidies contribute to lower world prices, making the market unprofitable for many growers outside India. 10

(d) With reference to Extract B, examine **two** possible effects of information gaps on the consumption of sugar.

(8)





SECTION D

Answer ONE question from this section.

Write your answer in the space provided.

EITHER

- 13** 'The HPV vaccine is recommended for all adults in the USA because it reduces the risk of cancer by 88%. If the HPV vaccine was given to all adults 925 000 cases of cancer would be prevented. However only 18.3% of adults were vaccinated between 2011 and 2014 preventing 170 000 cases of cancer.'

Evaluate why only 18.3% of adults were vaccinated.

(Total for Question 13 = 20 marks)

OR

- 14** '12 million consumers within the UK are on standard variable tariffs for their gas and electricity. One energy supplier, RWE npower, charged consumers on the standard variable rate £1 166 per year. However, its cheapest deal was £935 per year. Consequently the UK Government is introducing a maximum price for gas and electricity.'

Evaluate the likely impact of the introduction of a maximum price for gas and electricity.

(Total for Question 14 = 20 marks)



SECTION D

Answer ONE question from this section.

Write your answer in the space provided.

EITHER

- 13** In the Netherlands 68% of the price consumers pay for a litre of petrol is indirect tax. In neighbouring Germany indirect tax represents just 59%.

Evaluate the impact of these indirect taxes charged on petrol.

(Total for Question 13 = 20 marks)

OR

- 14** In the UK, in 2018, 10 million consumers travelling abroad did not take out travel insurance. This is despite 30% of consumers with travel insurance having to make a claim and the average medical bill costing £5620.

Evaluate reasons for the underconsumption of travel insurance.

(Total for Question 14 = 20 marks)



SECTION D**Answer ONE question from this section.****Write your answer in the space provided.****EITHER**

- 13** In the UK the maximum price for a unit of electricity for domestic consumers was £0.28 per kilowatt hour in September 2022. This was increased by the Government to £0.34 per kilowatt hour in October 2022.

Evaluate the microeconomic effects of an increase in the maximum price of electricity.

(Total for Question 13 = 20 marks)**OR**

- 14** Many consumers do not buy travel insurance before going on holiday abroad, despite the likely substantial costs if they need medical care.
Many car drivers do not provide complete and accurate information to car insurance companies when insuring their cars.

Evaluate the microeconomic effects of imperfect information on insurance markets.

(Total for Question 14 = 20 marks)

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

Chosen question number: **Question 13** ☒ **Question 14** ☒

Write your answer here:

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SUB-TOPIC 1.3.5.5

MORAL HAZARD

Sub-topic 1.3.5.5 · 4 questions · 13 marks · lowest tariff first



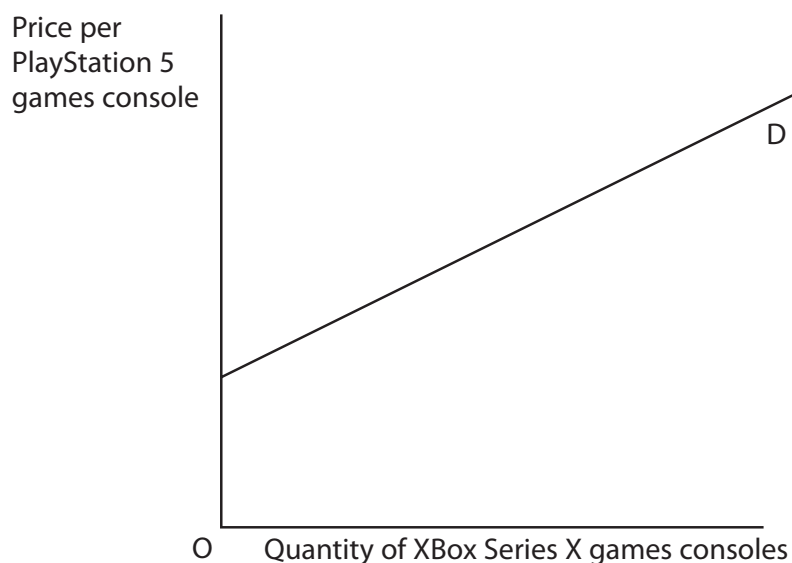
- 5 Before the global financial crisis of 2008, commercial banks expected that their governments would not allow them to fail because of the threats to the rest of the economy. This meant that some staff at banks took excessive risks when lending and investing.

Which **one** of the following concepts best describes the behaviour of staff at these banks?

- ☐ A Inertia
- ☐ B The free-rider problem
- ☐ C Moral hazard
- ☐ D Market bubble

(Total for Question 5 = 1 mark)

- 6 The diagram illustrates the relationship between the price of PlayStation 5 games consoles and the quantity demanded of Xbox Series X games consoles.



Which **one** of the following can be deduced from the diagram about the relationship between PlayStation 5 games consoles and Xbox Series X games consoles?

- ☐ A They are substitutes
- ☐ B They are complements
- ☐ C They are unrelated goods
- ☐ D They are inferior goods

(Total for Question 6 = 1 mark)

TOTAL FOR SECTION A = 6 MARKS

- 9** In Oregon, USA, research was conducted in which 10 000 citizens were given health insurance and 45 000 citizens were not. On average, the 10 000 citizens with health insurance had far more hospital admissions and emergency department visits.

Explain why the result of this research is an example of moral hazard.

(Total for Question 9 = 4 marks)



8 In the USA research found that 68% of those without health insurance and 88% of those with health insurance visited a dentist.

With reference to health insurance, explain what is meant by 'moral hazard'.

(Total for Question 8 = 4 marks)



9 In the USA 92% of people had private health insurance in 2021. It is estimated that, in the USA, \$200 billion per year is spent on unnecessary operations.

Explain **one** microeconomic reason why people might have unnecessary operations in the USA.

This image shows a full page of white paper with horizontal dotted lines. The lines are evenly spaced and run across the width of the page, providing a guide for handwriting practice. There are no margins, text, or other markings on the page.

(Total for Question 9 = 4 marks)



SUB-TOPIC 1.3.5.6

SPECULATION AND MARKET BUBBLES

Sub-topic 1.3.5.6 · 6 questions · 48 marks · lowest tariff first



SECTION C

Study Figure 1 and Extracts A, B and C in the Source Booklet before answering Question 12.

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

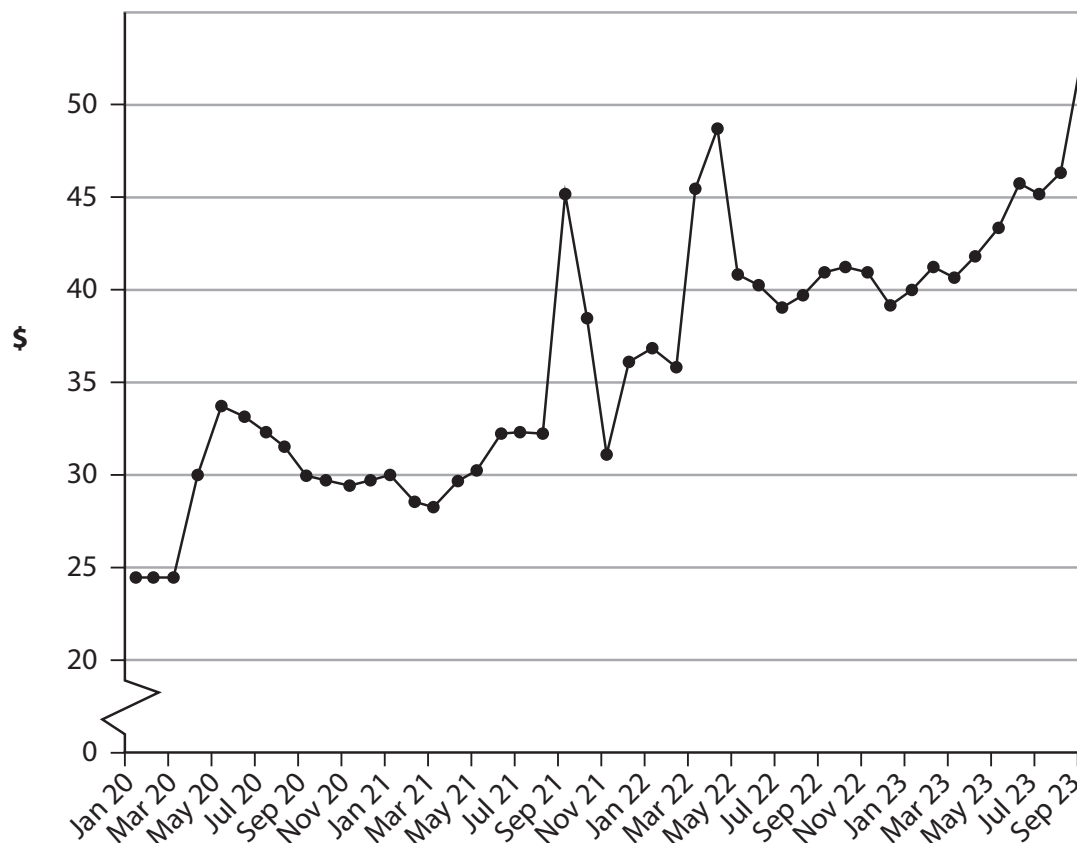
- 12** (a) Define the term 'speculation'. (Extract A, line 7) (2)
- (b) With reference to Figure 1 and Extract A, analyse **one** demand factor and **one** supply factor that caused the price of uranium to more than double between January 2020 and September 2023.
Illustrate your answer with a supply and demand diagram. (6)
- (c) With reference to Extract B, explain whether the supply of nuclear reactors is price elastic or price inelastic. (4)
- (d) With reference to Extract C, examine **two** microeconomic effects of the introduction of an indirect tax on the production of coal. (8)
- (e) With reference to Extract B, discuss the likely effects of subsidies paid to the nuclear power industry on consumers **and** governments.
Illustrate your answer with an appropriate diagram. (14)



Sources for use with Section C.

Sources of energy generation

Figure 1: World price of uranium, dollars per pound (lb), January 2020 to September 2023



Extract A Price of uranium

Between January 2020 and September 2023 the price of uranium more than doubled.

Uranium is used to generate nuclear power. Many countries have been increasing nuclear power generation for two significant reasons:

- in response to the unstable supply of gas and the rise in its price
- the need to meet international agreements on reducing carbon emissions.

5

This increase in nuclear power generation led to speculation in the market for uranium. Speculators bought significant amounts of uranium accounting for 25% of annual demand.

Over the same period, the production of uranium was affected by various factors:

10

- In France production was disrupted by a lack of critical chemicals
- Kazakhstan, the world's largest supplier, had problems with shipping its uranium out of the country
- Canada had problems at two mines that reduced its production by 9%.

Extract B Nuclear reactors

In August 2023 there were 441 nuclear power reactors operating in 33 countries. They jointly generated 10% of the world's electricity. By 2050 nuclear capacity is expected to increase by 43%, when an additional 60 nuclear reactors will have become active. The replacement of coal and gas-fired power stations with nuclear power will contribute to a 13% reduction in carbon emissions by 2050. It took, on average, 7.5 years to construct each of the 441 nuclear reactors. However, one reactor in Argentina took 33 years to construct.

5

Many governments are subsidising the nuclear power industry. For example:

- In 2021 the UK Government provided subsidies of £1.7 billion
- In 2023 the Government of China provided \$17 billion in subsidies for the building of six new reactors
- The Government of South Korea will spend \$515 million subsidising the nuclear industry.

10

Extract C Coal tax in Indonesia

The Government of Indonesia plans to introduce an indirect tax on the production of coal. In 2018 coal accounted for 40% of the energy generated in the country and caused 95 155 premature deaths. By taxing coal, the Government can use the revenue to compensate those who are negatively affected. It will also create an incentive for electricity generators to switch from coal to renewable sources of energy. This tax is expected to raise \$3.6 billion per year. In 2019 there were 1.96 million people employed in coal mining and coal exports earned \$19 billion per year.

5



1

12 (a) Define the term 'speculation'. (Extract A, line 7)

(2)

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8 A report identified that Hong Kong is the city with the highest risk of experiencing a housing market bubble. House prices in Hong Kong increased by 10% per year between 2012 and 2018.

With reference to the Hong Kong housing market, explain what is meant by a 'market bubble'.

(Total for Question 8 = 4 marks)



(Total for Question 8 = 4 marks)



SECTION C

Study Figure 1 and Extracts A, B and C in the Source Booklet before answering Question 12.

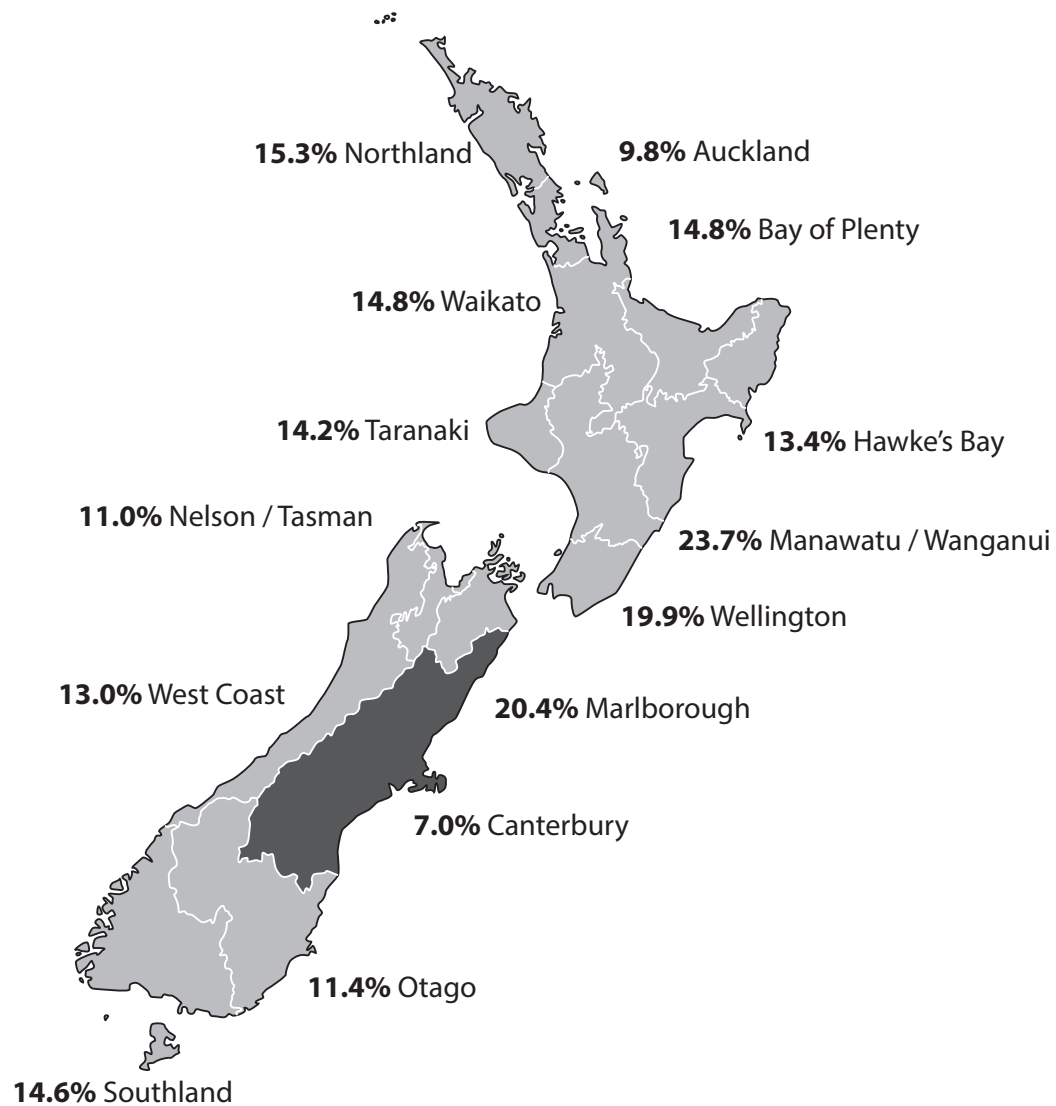
Write your answers in the space provided on the following pages.

- 12** (a) Define the term 'market failure' (Extract A, line 14). (2)
- (b) With reference to paragraph 1 of Extract A, analyse **two** reasons why house prices increased between March 2020 and March 2021.
Illustrate your answer with a supply and demand diagram. (6)
- (c) With reference to Extract B, explain why the supply of new houses is likely to be price inelastic. (4)
- (d) With reference to Extract C, examine whether national parks in New Zealand are public goods. (8)
- (e) With reference to Figure 1, Extract A and Extract B, discuss the likely microeconomic effects of a housing market bubble in New Zealand. (14)



Sources for use with Section C

New Zealand's housing market and national parks

Figure 1 Percentage change in house prices between March 2020 and March 2021, by region

Extract A Rapid increase in house prices

House prices in New Zealand increased by 15.7% between March 2020 and March 2021. The average house price had risen to NZ\$925 000. This increase in house prices was caused by increasing real incomes, low interest rates and a rise in immigration following the global health crisis. Real incomes increased as a result of an above average rate of economic growth. Between March 2020 and March 2021 the base interest rate in New Zealand was just 0.25%, making it relatively cheap to borrow to purchase houses. 5

Research showed that house prices in New Zealand were about 40% overvalued relative to income. House prices were rising faster than real incomes and were 8.6 times median income in 2020 and 10 times median income in 2021. In Auckland, the average property price increased to NZ\$1.4 million in 2021. This was 35 times median income. 10

According to New Zealand's Prime Minister, Jacinda Ardern, many buyers are speculators. In 2020 approximately 15 000 people buying houses owned five or more. She is worried that the speculators could cause a dangerous housing bubble and market failure. She is also concerned that 1% of the population are homeless, the highest rate of homelessness amongst developed countries. 15

Between 2000 and 2021 house prices increased by 256% in New Zealand. By comparison, house prices in the USA increased by 68% and in the UK by 110%.

Extract B House building in New Zealand

In 2017 the Government promised to build 100 000 new homes. Between June 2018 and July 2020 the Government built just 6 000 homes. It is expensive to build houses and there is much paperwork needed to obtain planning permission. Many local authorities limit the land on which houses can be built in order to protect the environment. There is a shortage of over 55 000 construction workers. 5

Between 2011 and 2020 the average annual growth rate in housebuilding was 13%. However, in 2021, the significant increase in house prices created an incentive to build new houses. Consequently, the number of new houses under construction increased by 26%. 10

Extract C New Zealand's national parks

New Zealand has 13 national parks covering 30 000 km² that the public can explore on foot, by boat, car or air. For much of the year there is so much space that an individual will rarely meet another person. However, in the summer season the national parks are very popular. This means that the national parks become more crowded and car parking spaces are hard to find. 5

Some activities within the national parks, such as skiing and kayaking, have to be paid for. However, individuals can walk, run or cycle across the national parks without charge.

(e) With reference to Figure 1, Extract A and Extract B, discuss the likely microeconomic effects of a housing market bubble in New Zealand.

(14)





(Total for Question 12 = 34 marks)

TOTAL FOR SECTION C = 34 MARKS

SECTION D

Answer ONE question from this section.

Write your answer in the space provided.

EITHER

- 13** In 2019 the price of a litre of diesel was 65% higher in Thailand than in Malaysia. The price difference was because of higher taxation on diesel in Thailand. This led to illegal smuggling. For example, on one night, Thai authorities seized 300 000 litres of diesel that was illegally imported from Malaysia.

Evaluate possible causes of government failure in a market of your choice.

(Total for Question 13 = 20 marks)

OR

- 14** Between 2000 and 2019 in China the average price of a house increased from 4 000 yuan per square metre (m²) to 60 000 yuan per m². The ratio of average house prices to average incomes increased from 5.6 to 7.6, showing that houses were becoming less affordable.

Evaluate the impact of market bubbles in the housing market.

(Total for Question 14 = 20 marks)



MARK SCHEMES

official mark schemes, in the same order as the questions



Section A

Question Number	Quantitative skills assessed	Answer	Mark
1	–	B	(1)
2	–	A	(1)
3	–	D	(1)
4	QS9: Interpret, apply and analyse information in written, graphical and tabular forms	B	(1)
5	QS9: Interpret, apply and analyse information in written, graphical and tabular forms	C	(1)
6	QS8: Make and interpret calculations of elasticity	D	(1)

Section A

Question	Quantitative skills assessed	Answer	Mark
1	–	D	(1)
2	–	A	(1)
3	–	B	(1)
4	QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	D	(1)
5	QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	C	(1)
6	QS8: Make calculations of elasticity and interpret the result	A	(1)

Section A

Question Number	Quantitative skills assessed	Answer	Mark
1		The only correct answer is A <i>B is not correct because the subsidy would lead to increased quantity and external costs- the government role is to reduce external costs</i> <i>C is not correct because the tax on the good would lead to decreased quantity and a reduction in external benefits- the government role is to reduce external costs</i> <i>D is not correct because this is a government failure and not a role of the government</i>	(1)
2	–	The only correct answer is C <i>A is not correct because this is a government failure</i> <i>B is not correct because diminishing marginal utility occurs in any normally functioning market</i> <i>D is not correct because this is a government failure</i>	(1)
3	QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	The only correct answer is B <i>A is not correct because this would be the result of an increase in productive capacity</i> <i>C is not correct because the movement to y is unattainable given current resources</i> <i>D is not correct because position y would imply that some resources are unemployed</i>	(1)

Section A

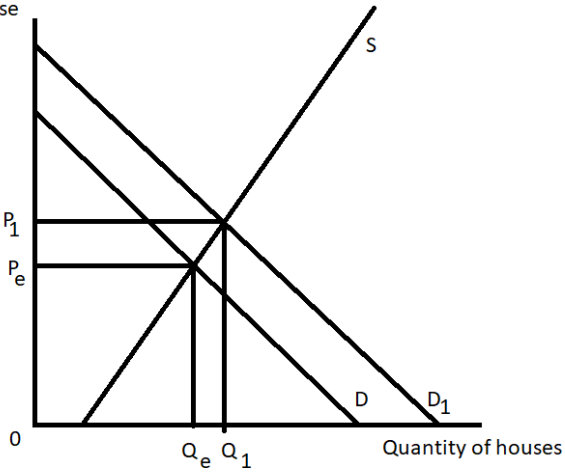
Question Number	Quantitative skills assessed	Answer	Mark
1	–	The only correct answer is B A is not correct because statement 2 is normative and not positive C is not correct because statement 1 is positive and not normative D is not correct as statement 1 is positive and statement 2 is normative	(1)
2	–	The only correct answer is C A is not correct because if consumers were good at computation they would calculate that they could save 20% and switch B is not correct because if people aimed to maximise utility they would switch as the money they have could be spent on other goods D is not correct because if consumers felt undervalued by their current provider they would be more likely to look for a provider that does value them	(1)
3	–	The only correct answer is A B is not correct because this is a function of the price mechanism C is not correct because this is government failure D is not correct because this is the government correcting the market failure	(1)

Section A

Question	Quantitative skills assessed	Answer	Mark
1	QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	The only correct answer is B A is not correct because this is a government failure C is not correct because this is a government failure D is not correct because the market is functioning efficiently	(1)
2	QS4: Construct and interpret a range of standard graphical forms QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	The only correct answer is D A is not correct because the maximum price is below the equilibrium so resulting in excess demand, not excess supply B is not correct because the maximum price is below the equilibrium so resulting in excess demand, not excess supply C is not correct because the higher price results in a contraction of demand and an extension of supply so excess demand decreases	(1)
3	QS2: Calculate, use and understand percentages, percentage changes and percentage point changes QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	The only correct answer is A B is not correct because the consumers would buy fewer products to maximise utility C is not correct because habitual behaviour would not result in consumers buying fewer products D is not correct because poor computational skills mean consumers would not be able to calculate the savings and would not buy fewer products	(1)

Section C

Question	Define the term 'market failure' (Extract A, line 14).	Mark
	Answer	
12 (a)	Knowledge 2 Up to 2 marks for defining 'market failure', e.g.: • Where the market/the price mechanism (1) leads to an inefficient allocation/misallocation/over allocation/under allocation of resources (1) • A market/housing bubble in New Zealand/homelessness (1)	(2)

Question	With reference to paragraph 1 of Extract A, analyse two reasons why house prices increased between March 2020 and March 2021. Illustrate your answer with a supply and demand diagram. Answer	Mark
12 (b)	Knowledge 2, Application 2, Analysis 2 Quantitative skills assessed: QS4: Construct and interpret a range of standard graphical forms QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Knowledge Up to 2 marks for the diagram showing: • Original supply, demand and equilibrium (1) • Final equilibrium after rightward shift in demand curve only (1) Analysis up to 2 marks for analysis linked to demand e.g.: • Increasing real incomes/above average rate of economic growth (1) • 0.25%/low base interest rates/cheap to borrow (1) • Immigration following the global health crisis (1) Application 2 marks for: • Rightwards shift in demand on diagram (1) • House prices in New Zealand increased by 15.7%/the average house price had risen to NZ\$925 000 (1) Price per house  Quantity of houses	(6)

Question	With reference to the Maldives, explain the difference between 'market failure' and 'government failure'.	Mark
8	Answer Knowledge 2, Application 2 Quantitative skills assessed: QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Knowledge 1 mark for understanding of 'market failure' - Where the price mechanism/ supply and demand/ buyers and sellers lead to an inefficient allocation of resources/ misallocation of resources (1) 1 mark for understanding of 'government failure' - Where government intervention leads to a net welfare loss/ a worse allocation of resources (1) Application 1 mark for reference to data on market failure - Market failure – under-provision of public goods/ under-investment in flood defences (1) 1 mark for reference to data on government failure - Government failure - excessive administrative costs/required to complete extensive paperwork (1)	(4)

4	QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	The only correct answer is D A is not correct because the social optimum quantity is Q_2 and price is P_2 B is not correct because the market equilibrium quantity is Q_1 and price is P_1 C is not correct because RST is the area of welfare loss	(1)
5	QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	The only correct answer is C A is not correct because this position shows unemployed resources B is not correct because at B there are fewer capital goods consumed than at C so growth will be slower D is not correct because this point is unattainable using current resources	(1)
6	QS8: Make calculations of elasticity and interpret the result	The only correct answer is B A is not correct because a decrease in real income will result in a less than proportionate decrease in demand for butter C is not correct because a decrease in real income will result in a less than proportionate increase in the demand for margarine D is not correct because the data is about income elasticity and not price elasticity of demand.	(1)

Section A

Question	Quantitative skills assessed	Answer	Mark
1	QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	The only correct answer is A B is not correct because firms would supply less if the price decrease C is not correct because the price decrease would be caused by lower demand D is not correct because government intervention is not a function of the price mechanism	(1)
2		The only correct answer is C A is not correct because increased boredom is a disadvantage B is not correct because costs to make each garment are likely to decrease D is not correct because less time will be required for training as they focus on fewer parts of the production process	(1)
3	QS8: Make calculations of elasticity and interpret the result QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	The only correct answer is C A is not correct because Caribbean holidays are a luxury/normal good B is not correct because healthcare does not have an income elasticity of demand value above +1 D is not correct because there is no data on price elasticity of demand	(1)
4	QS4: Construct and interpret a range of standard graphical forms QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	The only correct answer is D A is not correct because Q_1 is the market equilibrium output B is not correct because Q_2 is the social optimum output C is not correct because ABC is the welfare gain	(1)
5	QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	The only correct answer is D A is not correct because if too few permits were issued the price would be higher B is not correct because if too many permits were issued the price for carbon permits would be falling/lower C is not correct because a decrease in the demand for permits would reduce their price	(1)

Section A

Question	Quantitative skills assessed	Answer	Mark
1	QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	The only correct answer is D A is not correct because this illustrates that the market is functioning correctly B is not correct because this is an example of market failure C is not correct because this is government intervention succeeding in eliminating the market failure	(1)
2	QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	The only correct answer is A B is not correct because increased unemployment means that the economy operates further inside the PPF C is not correct because an improvement in technology would result in the PPF shifting outwards D is not correct because an increase in immigration will result in an increase in productive potential	(1)
3	QS8: Make calculations of elasticity and interpret the result QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	The only correct answer is C A is not correct because the PED value for diesel is the only type of car whose demand is inelastic B is not correct because the demand for petrol and electric cars is elastic D is not correct because the demand for electric cars is elastic so increasing the price will result in a decrease in total revenue	(1)
4	QS4: Construct and interpret a range of standard graphical forms QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	The only correct answer is D A is not correct because the market equilibrium quantity is at Q_1 B is not correct because the social optimum quantity is at Q_2 C is not correct because the welfare gain area is equal to the area UWX	(1)
5	QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	The only correct answer is C A is not correct because inertia is about consumers finding that the effort to secure a better deal is too great B is not correct because the free-rider problem is associated with public goods D is not correct because a market bubble emerges when the price of an asset rises above its true value	(1)

Section A

Question	Quantitative skills assessed	Answer	Mark
1	QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	The only correct answer is B A is not correct because this is a free market economy C is not correct because this is a command economy D is not correct because this type of economy does not exist	(1)
2	QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	The only correct answer is D A is not correct because this is market failure B is not correct because this is market failure C is not correct because this is market failure	(1)
3	QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	The only correct answer is B A is not correct because furniture is not purchased using forward markets C is not correct because smartphones are not traded on forward markets D is not correct because clothing is not traded on forward markets	(1)
4	QS4: Construct and interpret a range of standard graphical forms QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	The only correct answer is A B is not correct because the welfare loss area is found by going up from the market equilibrium at point W C is not correct because this is producer surplus at the market equilibrium D is not correct because this is producer surplus at the social optimum	(1)

Section C

Question	Define the term 'external costs' (Extract B, line 3).	Mark
	Answer	
12 (a)	Knowledge 2 Up to 2 marks for defining 'external cost', e.g.: • Negative impact (1) on third parties (1) • Cost on third party (1) • Where $MSC > (1) MPC (1)$ • Accept examples from Extract B e.g. reducing air quality/children's respiratory diseases/asthma/cancers/noise pollution/greenhouse gases/pollution in city centres (1)	(2)



Section C

Question	Define the term 'external costs' (Extract C, line 11).	Mark
	Answer	
12 (a)	Knowledge 2 Up to 2 marks for defining 'external cost', e.g.: • Costs to third parties (1) • Negative (1) impact on third parties (1) • Where $MSC > (1) MPC (1)$ • Economic agents not involved in the transaction (1) experience costs (1) • Accept explicit examples from Extract C e.g. causes cancers, contaminated waste water (1)	(2)

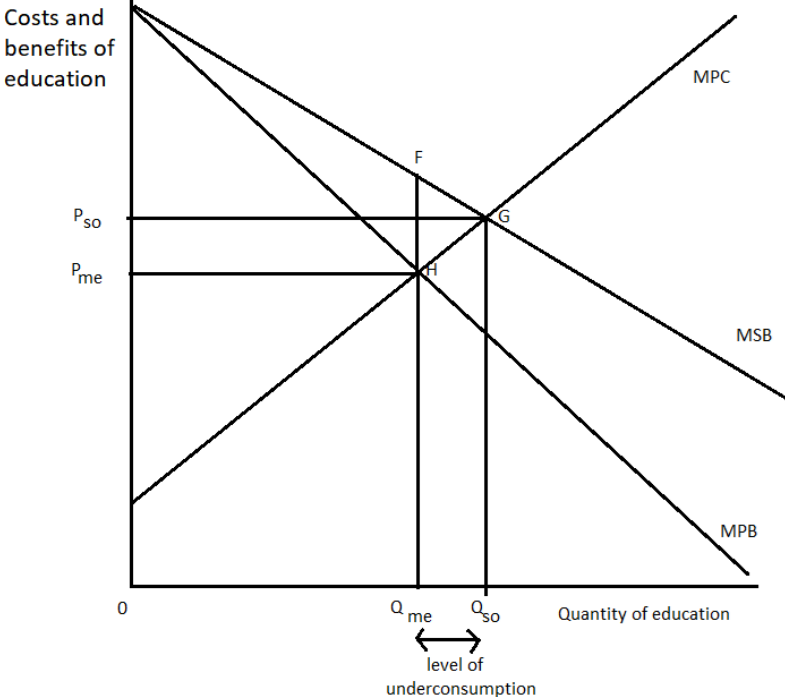
Section B

Question Number	Answer	Mark
7	Knowledge 1, Application 3 Quantitative skills assessed: QS4: Construct and interpret a range of standard graphical forms QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Knowledge 1 mark for showing knowledge on the diagram - MPB and MSB drawn in correct positions (1) Application Up to 2 marks for the following information included on diagram: - Market equilibrium (1) - Social optimum (1) - Welfare gain/loss triangle (1) 1 mark for the following information included on diagram or referred to in written explanation: - Clearly identifying the size of the underconsumption (1) Costs and benefits per vaccination Welfare gain/ Welfare loss P_{SO} P_{ME} Q_{ME} Q_{SO} underconsumption Quantity of vaccinations	(4)

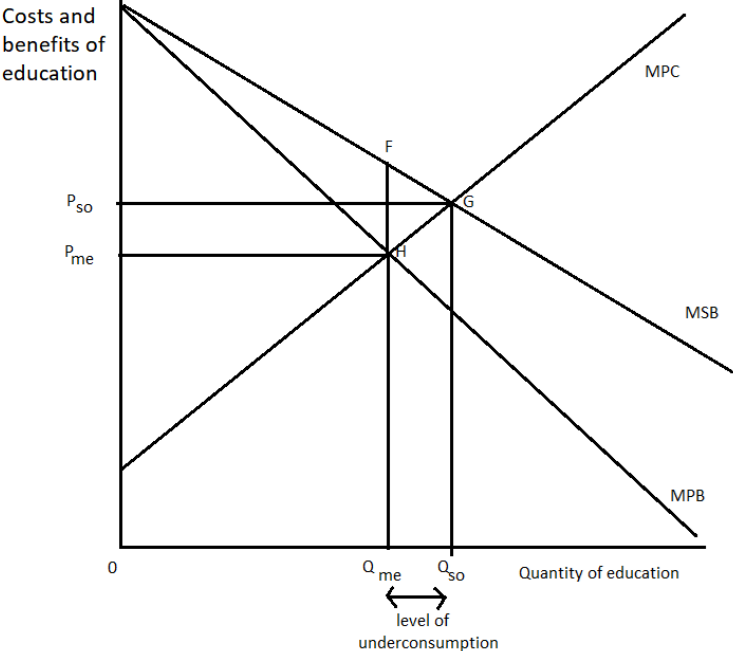
Question Number	Answer	Mark
8	Knowledge 2, Application 2 Quantitative skills assessed: QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Knowledge 2 marks for defining 'external costs of production' • Negative impacts (1) on third parties (1) • Negative (1) spillover effects (1) • Where social marginal costs/MSK are greater than (1) private marginal costs/MPC (1) - May be shown diagrammatically • Where production leads to a cost (1) to third parties (1) Application 2 marks for applying to the data in the table e.g.: • Producing 1kg of lamb causes 24kg of greenhouse gas emissions/producing 1kg of poultry causes 6kg of greenhouse gas emissions/producing 1kg of beef causes 60kg of greenhouse gas emissions (1) • which will contribute to global warming/climate change (1)	(4)

Question	With reference to the information provided, explain the difference between private benefits and external benefits.	Mark
9	Answer Knowledge 2, Application 2 Quantitative skills assessed: QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Knowledge 1 mark for understanding of ‘private benefits’ - Private benefits are benefits/positive impacts on the buyer or seller/first/second party (1) 1 mark for understanding of ‘external benefits’ - External benefits are benefits/positive impacts on third parties/positive spillovers/ $MSB > MPB$ (1) Application 1 mark for reference to private benefits in stem - Benefits to her neighbour, Tania, of earning revenue through selling honey/ - Benefits to Emiliana of earning revenue through selling sunflower seeds (1) 1 mark for reference to external benefits in stem - Emiliana’s production increased from 300kg of sunflower seeds to 620kg of sunflower seeds/ - The honey bees help pollinate Emiliana’s sunflowers increasing her output (1)	(4)

Section B

Question	Draw a diagram to illustrate these external benefits.	Mark
	Answer	
7	Knowledge 1, Application 3 Quantitative skills assessed: QS4: Construct and interpret a range of standard graphical forms QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Knowledge 1 mark for showing knowledge on diagram - Downward sloping MSB above MPB (1) Application Up to 3 marks for the following information included on diagram or in supporting write up: - Market equilibrium price and quantity (1) - Social optimum price and quantity (1) - Welfare loss/welfare gain area FGH/ size of external benefit FH/ level of underconsumption $Q_{me} - Q_{so}$ (1)  NB accept a parallel shift of MPB to MSB	(4)

Section B

Question	Answer	Mark
7	In 2021 the number of citizens taking online education courses in the Philippines was 1 300 000. Draw a diagram to illustrate the likely external benefits resulting from online education in the Philippines. Knowledge 1, Application 3 Quantitative skills assessed: QS4: Construct and interpret a range of standard graphical forms QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Knowledge 1 mark for showing knowledge on diagram - Downward sloping MSB above MPB (1) Application Up to 3 marks for the following information included on diagram: - Market equilibrium price and quantity (1) - Social optimum price and quantity (1) - Welfare loss/welfare gain area FGH/ size of external benefit FH/ level of underconsumption $Q_{me} - Q_{so}$ (1) (allow underprovided)  NB accept a parallel shift of MPB to MSB	(4)

Question Number	With reference to Extract B, examine the external costs associated with the production of cocoa beans.	Mark
12(d)	Knowledge 2, Application 2, Analysis 2, Evaluation 2 Knowledge Up to 2 marks for knowledge of external costs, e.g.: • Definition of external costs: negative impacts on third parties (1). • Where MSC are above MPC- this may be shown diagrammatically (1). Application & Analysis Up to 2 marks for application to external costs in the extract and up to 2 marks for linked explanation showing the external costs of cocoa production, e.g.: • Rainforest being lost (1Ap) is likely to be chopped down, this means less trees are available to turn carbon dioxide in to oxygen causing health issues (1An). • To increase production some farmers start to use fertiliser (1Ap) which can pollute rivers which could have a negative impact on fishing industry as fish are damaged (1An). • The reduction in rainforest in Indonesia from 30% to 15% (1Ap) means a loss of biodiversity which means species may be lost and possible future cures and medicines lost (1An). Evaluation Up to 2 marks for evaluative comments, e.g.: • Whilst cocoa farmers benefit from production other producers lose out such as fishing industry (1+1). • External costs may be balanced with private benefits of production/ profit is generated for cocoa farmers (1+1). • External cost may be balanced with external benefits e.g. resulting from increased rural incomes/employment leading to increased expenditure (1+1). • Magnitude: it depends on production as to the size of external costs (1+1). • Training on how to produce in an environmentally friendly way can help reduce the size of external costs (1+1). • Measurement of the size of any external costs is difficult to determine (1+1). • In the long-term, having more Rainforest Alliance producers should help reduce these external costs (1+1).	(8)

Question Number	With reference to Extract B, examine the external costs resulting from increased meat production.	Mark
	Answer	
12(d)	Knowledge 2, Application 2, Analysis 2, Evaluation 2 Knowledge Up to 2 marks for knowledge of external costs, e.g.: • Definition of external costs: negative impacts on third parties (1) • Where the marginal social costs are greater than the marginal private costs (1). May be shown diagrammatically. Application and Analysis Up to 2 marks for each linked explanation showing the external costs of meat production up to a maximum of 4 marks, e.g.: • Meat production causes 15% of all global greenhouse gas emissions and extra greenhouse gases may contribute to global warming. This may affect farmer's ability to grow crops (1+1). • Water pollution will affect water companies who have to invest more in cleaning the water/ will affect consumers who may become ill from drinking polluted water (1+1). • Excessive use of antibiotics is also leading to resistance amongst humans which means when antibiotics need to be used they will be ineffective (1+1). • Consuming too much meat damages health costing health services to treat those affected (1+1) Evaluation Up to 2 marks for two evaluative points or one evaluative point developed, e.g.: • Whilst firms involved in meat production benefit from production other producers lose out such as water industry (1+1). • External costs must be balanced with private benefits of production/ employment is created by meat production (1+1). • Magnitude: it depends on production as to the size of external costs and 15% represents a significant contribution to greenhouse gases (1+1). • Training on how to produce in an environmentally friendly way can help reduce the size of external costs (1+1). • Measurement of the size of any external costs is difficult to determine and quantify (1+1). • Meat consumption may be just as damaging as meat production. Over time, rates of obesity, diabetes and cancer	(8)

Question Number	With reference to Extract B, discuss the likely effects of the introduction of an indirect tax on meat. Illustrate your answer with an appropriate diagram. Indicative content
12(e)	Indicative content guidance Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make but this does not imply that any of these must be included. Other relevant points must also be credited. Quantitative skills assessed QS4: Construct and interpret a range of standard graphical forms QS9: Interpret, apply and analyse information in written, graphical and tabular forms. Knowledge, Application and Analysis (8 marks) – indicative content • Definition of 'indirect taxation' – tax on expenditure. • Identification of ad valorem tax as percentage tax. • Indirect tax adds to production costs of meat producers. • Diagram of showing the introduction of an indirect tax on meat.

Question	With reference to Extract B, examine the external costs associated with the consumption and disposal of plastic bags. Answer	Mark
12(d)	Knowledge 2, Application 2, Analysis 2, Evaluation 2 Knowledge Up to 2 marks for e.g.: • Definition of external costs: where costs are incurred by third parties (1) not included in the price mechanism (1) • The market ignores these costs and leads to an overconsumption of plastic (1) • The market price is below the socially optimal price (1) • External costs are an example of market failure (1) Analysis & Application 2 marks for each linked explanation of external costs, up to a maximum of 4 marks e.g.: • The contamination of soil may affect farmers who find they have a poor yield from the crops they grow or find it is contaminated/leading to lower revenues and profits (1+1) • The deaths of 100,000 marine animals reduce the supply available to the fishing industry and has negative impacts on the ecosystem (1+1) • 90% of debris is plastic and this may harm sea creatures who mistake it for food or get trapped in it (1+1) • Human health may be affected by the contamination of food with toxins. Healthcare providers may need to treat people affected by contamination costing tax payers where healthcare is provided by the state (1+1) Evaluation Up to 2 marks for evaluative comments, e.g.: • Plastic bags benefit consumers as it makes transporting goods more hygienic /convenient/ protects products from damage (1+1) • It is difficult to place a value on external costs making it hard to quantify the size of external costs (1+1) • There is a significant external cost here with 100 000 marine animals being affected/ makes up 90% of debris in oceans (1+1) • The problems may not be identified immediately and extra costs may take a long time to emerge (1+1) • The plastic in the oceans may not only be caused by plastic bags (1+1) • The source for this information may be biased presenting evidence which is less reliable or valid as they are a conservation organisation campaigning for environmental protection (1+1)	(8)

Question	With reference to Extract B, examine two external costs associated with the production of clothing.	Mark
	Answer	
12(d)	QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms Knowledge 2, Application 2, Analysis 2, Evaluation 2 Application, Knowledge and Analysis Up to 2 marks for reference to Extract B and up to 2 marks for identifying two effects and up to 2 marks for linked explanations , e.g.: • Definition of ‘external costs’ – negative impacts on third parties outside a transaction (1K) • Jeans use 3 781 litres of water (1Ap) leaving less for drinking water (1K) which may push up prices of drinking water (1An) • Jeans produce 33.4kg of carbon emissions (1Ap) which are greenhouse gases contributing to global warming (1K) which may cause rising sea levels/flooding (1An) • Globally clothing manufacturing uses 93 billion cubic metres of water (1Ap) leaving less clean water for water companies (1K) which may mean more needs spending on water treatment (1An) • Clothes dyeing produces 20% of waste-water (1Ap) which may need cleaning by water companies (1K) adding to their costs which are passed on as higher prices to consumers (1An) • Burning clothing (1Ap) causes air pollution which may cause breathing difficulties (1K) and costs to health services (1An) • Clothing manufacturers produce 10% of annual global carbon emissions (1Ap) which contribute to global warming (1K) which may make it difficult to farm certain crops as the weather is no longer ideal (1An) 1 A mark for a correctly drawn external costs of production diagram Evaluation Up to 2 marks for evaluative comments, e.g.: • Magnitude of costs- 93 billion cubic metres is a significant number (1+1) • Measurement – it is hard to measure the size of external costs- e.g. the value placed on clean air/water (1+1) • Manufacturing countries will experience higher levels of external costs (1+1) • May be substantial external benefits- employs 75 million people who spend money where they live boosting the economy (1+1)	(8)

Question	With reference to Extract C, discuss the impact of the removal of the subsidy paid to Indian clothing manufacturers on consumers and manufacturers. Illustrate your answer with an appropriate diagram. Indicative content
12(e)	Indicative content guidance Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make but this does not imply that any of these must be included. Other relevant points must also be credited. Quantitative skills assessed QS4: Construct and interpret a range of standard graphical forms QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Knowledge, Application and Analysis (8 marks) – indicative content • Subsidy- cash grant paid to encourage production • Removal of subsidy- increases costs of production • Decreases supply $S+Sub$ to S • Increases price P_1 to P_2 • Decreases quantity Q_1 to Q_2 • Reduced government spending $ABCP_1$ • Consumer surplus falls from FCP_1 to FIP_2 • Producer surplus falls from CHP_1 to GIP_2 • A risk to the 35 million who work in clothing manufacturing in India • Unemployment in the Indian clothing industry • Clothing exports from India may fall from their current level of 12% of total exports • US and Turkish clothing manufacturers will be able to better compete with Indian clothing manufacturers • After being protected Indian firms may be uncompetitive • Money saved can be reallocated to health and education Diagram

Question	With reference to the second and third paragraphs of Extract A, examine two external costs associated with chicken production.	Mark
	Answer	
12(d)	QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms Knowledge 2, Application 2, Analysis 2, Evaluation 2 Knowledge and Analysis Up to 2 marks for identifying two impacts and up to 2 marks for linked explanations, e.g.: • This leaves less water in the natural environment/ water becomes scarcer (1K) meaning animals and humans find it more difficult to find water for consumption (1AN) • The grain used for chicken feed means more land needs to be farmed (1K) which may result in deforestation as trees are removed to make room for growing crops resulting in habitat destruction for animals/loss of possible future medications (1AN) • Additional carbon dioxide emissions may cause global warming (1K) this may increase the risk of flooding as water levels rise/ increase the risk of wildfires as global temperatures rise causing damage to peoples' homes (1AN) • 1 Knowledge mark for accurate diagram showing external costs of production OR for correct definition of external costs (1K) Application Up to 2 marks for application to Extract A One kilogram of chicken uses: • Uses 957 litres of water per kg (1AP) • 0.9kg of grain to feed the chickens per kg (1AP) • 0.7kg of carbon dioxide per kg (1AP) Evaluation Up to 2 marks for evaluative comments (2+0 or 1+1), e.g.: • 50% less negative impact on the environment compared to 1965 so a reduction from approximately 2000 litres of water/ 1.8kg of grain/ 1.4kg CO₂ (1+1) • Difficult to quantify external costs, putting a value on the external costs of chicken production is difficult (1+1) • 345 billion kg chicken produced- substantial impact (1) • The external costs may only be experienced in the long-run (1+1) • There may be external benefits, such as employment associated with chicken production (1+1) • Other meat products may contribute more carbon dioxide emissions meaning chicken is less environmentally damaging (1+1)	(8)

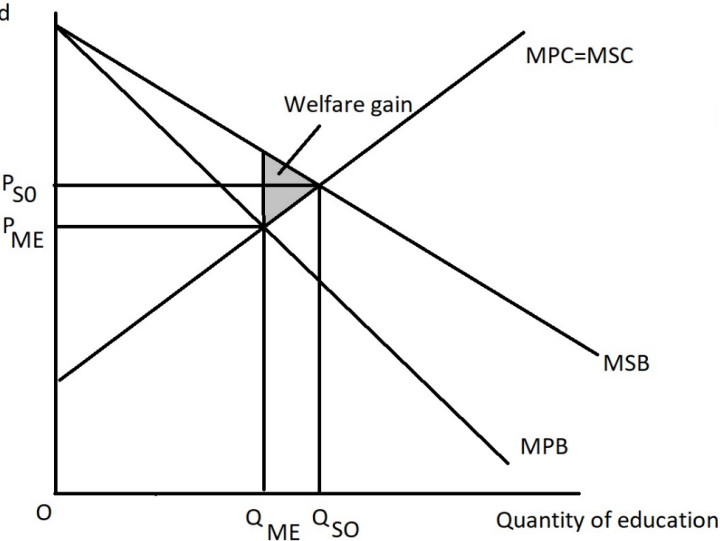
Question	With reference to Extract B and your own knowledge, discuss the impact of the introduction of an indirect tax on 'junk food'. Illustrate your answer with an appropriate diagram. Indicative content
12(e)	Indicative content guidance Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make but this does not imply that any of these must be included. Other relevant points must also be credited. Quantitative skills assessed QS4: Construct and interpret a range of standard graphical forms QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Knowledge, Application and Analysis (8 marks) – indicative content • Indirect tax- expenditure tax • Junk food- foods that are low in nutrients and high in calories, salt, sugar or fat. • Junk food/ obesity increases the risk of cancer, heart disease and diabetes- these will reduce the quality of life and result in costs to health services/ government • Tax introduced on junk food, such as burgers, fried chicken, pizza, chips and ice cream. • Sales of junk foods increased from \$862 billion to \$972 billion and are expected to grow further to \$1 467 billion by 2028- tax is needed to reduce the quantity of junk food consumed • The WHO estimated that junk food has contributed to 770 million people being obese in 2020/ will grow to over 1 billion by 2030 - this causes costs to health services- the tax would help reduce this number of obese people and health care costs associated with this/decrease the external costs of consumption • Treating obesity-related issues account for 8.4% of expenditure on health care in developed countries- creating an opportunity cost as less funds are available for other treatments

Question	With reference to Extract B, examine two external costs associated with rice production. Answer	Mark
12(d)	QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms Knowledge 2, Application 2, Analysis 2, Evaluation 2 Knowledge and Analysis 2 knowledge marks for identifying external costs and 2 analysis marks for linked explanation of each external cost, e.g.: • Additional emissions may cause global warming (1K) this may increase the risk of flooding as water levels rise/ increase the risk of wildfires as global temperatures rise causing damage to peoples' homes (1AN) • Rice production leaves less water in the natural environment (1K) meaning animals and humans find it more difficult to find water for consumption (1AN) • Insecticides kill off insects/ bees reducing the amount of honey/crops produced (1K) reducing the revenue and profits of beekeepers/farmers (1AN) • Respiratory problems (1K) resulting in additional health costs to the individual and government (1AN) • Up to 1 mark for definition of external costs or accurate diagram showing external costs of production Application Up to 2 marks for external costs with application to Extract B • 12% of global methane emissions/ 1.5% of all greenhouse gas emissions/ Vietnam's paddy fields produce more carbon emissions than its transport network (1AP) • 1 kg of rice requires 2 500 litres of water/ Rice uses 33% of the world's irrigation water (1AP) • Insecticides resulted in a 44% decline in bee population in the USA (1AP) Evaluation Up to 2 marks for evaluative comments (2+0 or 1+1), e.g.: • 90% of rice is consumed within the country reducing emissions from transporting rice (1) • Difficult to quantify external costs, putting a value on the impact on third parties e.g. farmers, bee keepers (1+1) • Substantial impact e.g. 12% global methane emissions/2 500 litres of water (1+1) • The external costs may only be experienced in the long-run as it takes a long time for the third party impact to emerge e.g. climate change (1+1) • There may be external benefits, such as employment associated with rice production (1+1) • The magnitude of the external costs may be small as only 1.5% of global emissions contributed by rice (1+1)	(8)



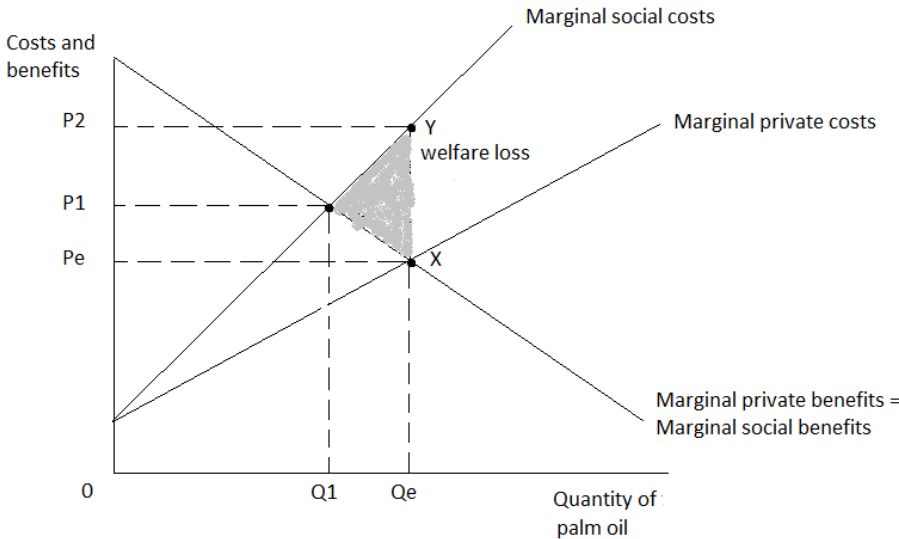
Question	With reference to Extract C, examine two external costs associated with container ships. Answer	Mark
12(d)	QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms Knowledge 2, Application 2, Analysis 2, Evaluation 2 Knowledge and Analysis Up to 2 marks for identifying two effects and up to 2 marks for linked explanations which must link to the third party, e.g.: • The greenhouse gases e.g. CO₂ contribute to global warming (1K) resulting in flooding of homes/wildfires (1AN) • Can damage buildings and forests (1K) as the sulfur can cause acid rain (1AN) • Creates healthcare costs (1K) as people require treatment/ inhalers/chemotherapy (1AN) • Causes dolphins and whales or sea creatures to get lost (1K) which may cause resources to be used when they become beached/ can have an adverse impact on biodiversity of marine life (1AN) • Sea animals become sick (1K) costing animal charities to rescue and rehabilitate (1AN) • Destroying sea corals (1K) requiring extra resources for clean up (1AN) Application Up to 2 marks for application to Extract C • 2% of global CO₂ emissions come from container ships (1) • The low-grade fuel used by the world's 90 000 container ships contains 2 000 times the amount of sulfur compared to diesel fuel used in cars (1) • In one year, a single large container ship can emit cancer and asthma-causing pollutants equivalent to that of 50 million cars (1) • The hum of ship engines affects marine life, disrupting communication and navigation for animals like whales and dolphins (1) • Oil spills, sewage and chemical waste discharged by container ships contribute to water pollution (1) Evaluation Up to 2 marks for evaluative comments (2+0 or 1+1), e.g.: • Carbon emissions were reduced by 30% through measures to reduce fuel consumption reducing the size of these external costs (1+1) • New technology is helping to reduce pollution further and external costs reduce (1+1) • Hard to put value on external costs of production as they are hard to measure (1+1) • Benefits of being able to import and export goods (1+1)	(8)

Question	With reference to Extract C and your own knowledge, discuss the likely benefits of subsidies paid to the manufacturers of wind sails. Illustrate your answer with a supply and demand diagram. Indicative content
12(e)	Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make but this does not imply that any of these must be included. Other relevant points must also be credited. Quantitative skills assessed QS4: Construct and interpret a range of standard graphical forms QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Indicative content guidance Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make but this does not imply that any of these must be included. Other relevant points must also be credited. Knowledge, Application and Analysis (8 marks) – indicative content • Subsidy- cash grant paid to encourage production • Reduces wind sail manufacturers' costs of production • Generates employment in manufacturing wind sails

Question	Discuss reasons why the 'quantity of education is below the social optimum level' (Extract B, lines 2 and 3). Refer to external benefits in your answer. Illustrate your answer with an appropriate diagram. Indicative content
12(e)	Indicative content guidance Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make but this does not imply that any of these must be included. Other relevant points must also be credited. Quantitative skills assessed QS4: Construct and interpret a range of standard graphical forms QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Knowledge, Application and Analysis (8 marks) – indicative content • Definition of 'external benefits' – where there are positive impacts on third parties/where MSB is greater than MPB • Diagram showing external benefits Costs and benefits  Quantity of education • Consumers only consider their private costs and their private benefits • Consumers ignore impacts on third parties/ external benefits • Consumers are undervaluing the benefit of education to society • The market equilibrium price, P_{ME} is below the social optimum price, P_{SO} • The market equilibrium quantity, Q_{ME} is below the social optimum price, Q_{SO} • Limited number of years of education just 4.4 years for adults • The welfare gain that can be achieved by moving to social optimum is shaded/ labelled • Under-consumption of education $Q_{SO}-Q_{ME}$, • Private benefits could include higher income over life time

		- External benefits could include lower government spending on health, welfare, and prisons; less poverty, better international competitiveness, new ideas and improved technology - Under-investment in education as wages can be earned in vanilla production - Benefits of employment may be greater than any lost benefit from under-consumption of education 20 000 children aged 12 to 17 work in vanilla production/ 32% of workforce - Families need the child to work to supplement income - With rising costs of living children need to work so families can afford food - Poor conditions and overcrowding make education less attractive - Cyclones destroyed schools and money not available to improve schools - Public funds for education have been reduced - This is not a choice for families but a necessity to ensure survival/meeting of basic needs
Level	Mark	Descriptor
	0	No rewardable material
Level 1	1–3	Displays isolated, superficial or imprecise knowledge and understanding of economic terms, principles, concepts, theories and models. Use of generic material or irrelevant information or inappropriate examples. Descriptive approach, which has no chains of reasoning.
Level 2	4–6	Displays elements of knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to apply knowledge and understanding to some elements of the question. Some evidence and contextual references are evident in the answer. Chains of reasoning in terms of cause and/or consequence are evident but they may not be developed fully or some stages are omitted.
Level 3	7–8	Demonstrates accurate and precise knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to link knowledge and understanding in context using relevant examples which are fully integrated to address the broad elements of the question. Analysis is clear, coherent, relevant and focused. The answer demonstrates logical and multi-stage chains of reasoning in terms of cause and/or consequence.
		Evaluation (6 marks) – indicative content - Magnitude of external benefits. - Magnitude of welfare gain/loss- with only 4.4 years of education the welfare loss could be significant in size - Measurement – it is hard to measure the external benefits of education - Overcrowding in schools means private and external benefits may be small - There are significant numbers benefiting from education - Policy is only rewarded when evaluating the reasons given
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–2	Identification of generic evaluative comments. No supporting evidence/reference to context.

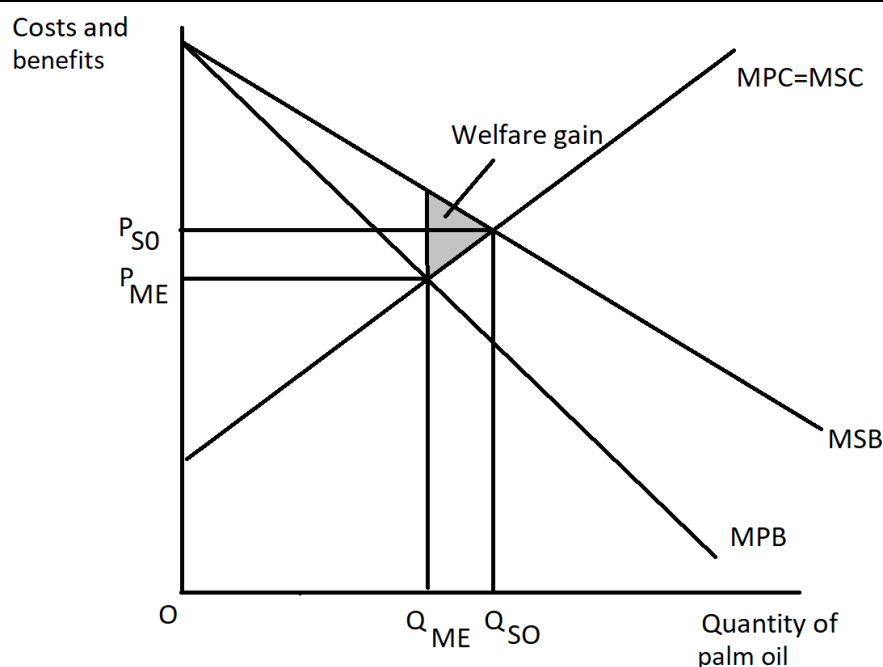
		No evidence of a logical chain of reasoning.
Level 2	3–4	Evidence of evaluation of alternative approaches. Some supporting evidence/reference to context. Evaluation is supported by a partially-developed chain of reasoning.
Level 3	5–6	Evaluation recognises different viewpoints and/or is critical of the evidence. Appropriate reference to evidence/context. Evaluation is supported by a logical chain of reasoning.

Question Number	Indicative content
12 (e)	Indicative content guidance Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make but this does not imply that any of these must be included. Other relevant points must also be credited. Quantitative skills assessed QS4: Construct and interpret a range of standard graphical forms QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms Knowledge, Application and Analysis (8 marks) – indicative content Externalities- where third parties are affected by a transaction negatively or positively External costs Definition of 'external cost' – where there are negative impact on third parties Diagram showing external costs 

- Producers consider their private costs
- Producers ignore impacts on third parties/ external costs
- Producers are undervaluing the costs of producing palm oil
- The market equilibrium price, P_e is below the social optimum price, P_1 .
- The market equilibrium quantity, Q_e is above the social optimum quantity, Q_1 . there is overconsumption
- The welfare loss is indicated by the welfare loss triangle as shaded.
- The rapid and poorly managed expansion of production has caused large scale deforestation- loss of biodiversity/ loss of potential medicines- future generations affected through this loss/ less oxygen in environment- causing health issues and costs to health services/ greater risk of flooding affecting farmers and the local community
- Caused significant greenhouse gas emissions from the destruction and burning of rainforests- may lead to global warming and health issues- third party Government affected by spending on healthcare
- In Indonesia and Malaysia production has caused habitat and biodiversity loss- third party affecting animals and humans through loss of medicines
- Third party affected- endangered animals population of orangutans reduced by 100 000. 69% of the elephant's habitat has been lost, there are only 100 rhinos left

External benefits

- Definition of 'external benefits' – where there are positive impact on third parties
- Diagram showing external benefits



- Consumers consider their private benefits
- Consumers ignore impacts on third parties/ external benefits
- Consumers are undervaluing the benefit of palm oil
- The market equilibrium price, P_{ME} is below the social optimum price, P_{SO} / The market equilibrium price P_{ME} is below the social optimum price P_{SO} .
- The market equilibrium quantity, Q_{ME} is below the social optimum quantity, Q_{SO} - there is underconsumption
- The welfare gain that can be achieved by moving to social optimum is shaded/ labelled
- 36 000 000 tonnes produced in Indonesia/ 21 000 000 tonnes produced in Malaysia will generate substantial export income helping to fund the import of more capital goods helping to boost long term growth for all
- Private benefit of palm oil production tripling between 1998 and 2018- generating more revenue creates an external benefit as firms spent more within economy
- The palm oil sector employs 4.7 million in Malaysia and Indonesia, with these workers spending more money within their economies
- A further 11 million are employed in the two countries who are indirectly dependent on the sector

Positive or negative externalities may be offered as KAA and evaluation may consider the other type of externality

Level	Mark	Descriptor
	0	No rewardable material
Level 1	1–3	Displays isolated, superficial or imprecise knowledge and understanding of economic terms, principles, concepts, theories and models. Use of generic material or irrelevant information or inappropriate examples. Descriptive approach, which has no chains of reasoning.
Level 2	4–6	Displays elements of knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to apply knowledge and understanding to some elements of the question. Some evidence and contextual references are evident in the answer. Chains of reasoning in terms of cause and/or consequence are evident but they may not be developed fully or some stages are omitted.
Level 3	7–8	Demonstrates accurate and precise knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to link knowledge and understanding in context using relevant examples which are fully integrated to address the broad elements of the question. Analysis is clear, coherent, relevant and focused. The answer demonstrates logical and multi-stage chains of reasoning in terms of cause and/or consequence.
		Evaluation (6 marks) – indicative content • Magnitude of external benefit/ external costs • Magnitude of welfare gain/loss- with high levels of production welfare losses/ gains significant • Measurement – it is hard to measure the external benefits/ costs of production • Weighing of the external benefits with external costs • Short term little external costs or benefits noticed but long term these may be more noticeable/significant • Palm oil requires one-tenth as much land as soybean production so causing less damage to land- lower external costs • One-seventh of the fertiliser used compared to soybean, so less impact on quality of water supply and damage to animals • One-sixth of the energy to produce the same amount of soybean, so less external costs when less energy produced

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–2	Identification of generic evaluative comments. No supporting evidence/reference to context. No evidence of a logical chain of reasoning.
Level 2	3–4	Evidence of evaluation of alternative approaches. Some supporting evidence/reference to context. Evaluation is supported by a partially-developed chain of reasoning.
Level 3	5–6	Evaluation recognises different viewpoints and/or is critical of the evidence. Appropriate reference to evidence/context. Evaluation is supported by a logical chain of reasoning.

	- This may only be a temporary issue (1) as demand from healthcare may decrease (1) - Increased production may also increase costs (1) and it depends on the size of this increase compared to the size of the increase in demand (1)	
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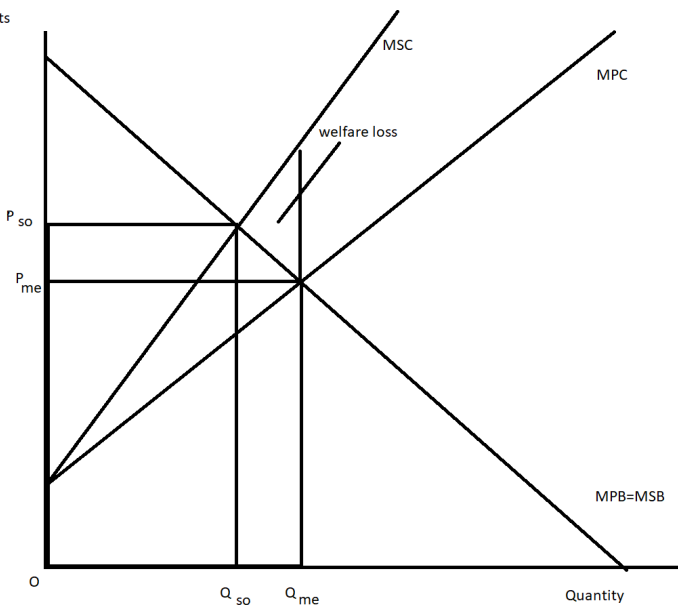
Question	With reference to Extract B, discuss the external costs associated with tyre production and consumption.	
	Indicative content	
12(e)	Indicative content guidance Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make but this does not imply that any of these must be included. Other relevant points must also be credited. Quantitative skills assessed QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Knowledge, Application and Analysis (8 marks) – indicative content - External costs – negative impacts on third parties/ the cost incurred by an individual, firm or community as a result of an economic transaction which they are not directly involved in / where $MSC > MPC$ or $MPB > MSB$ External costs of production - Costs to third parties associated with the production of rubber- tyres use 75% of world's supply - Deforestation (3 million hectares) in Mekong region causes a loss of natural habitats for animals, loss of biodiversity, future medicines - Reward external costs of production diagram External costs of consumption - Costs to third parties associated with consumption of tyres emitted 1 000 times more particles than from exhaust fumes. - Increased risk of lung cancer/Cardiovascular diseases affecting the heart and causing strokes- cost to healthcare/loss of workforce - Tyres contain chemicals and heavy metals that are released into the environment over time causing cancer and genetic mutations-costs to clean up If tyre production or consumption is omitted limit to Level 2	
Level	Mark	Descriptor
	0	No rewardable material
Level 1	1–3	Displays isolated, superficial or imprecise knowledge and understanding of economic terms, principles, concepts, theories and models. Use of generic material or irrelevant information or inappropriate examples. Descriptive approach, which has no chains of reasoning.

Level 2	4–6	Displays elements of knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to apply knowledge and understanding to some elements of the question. Some evidence and contextual references are evident in the answer. Chains of reasoning in terms of cause and/or consequence are evident but they may not be developed fully or some stages are omitted.
Level 3	7–8	Demonstrates accurate and precise knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to link knowledge and understanding in context using relevant examples which are fully integrated to address the broad elements of the question. Analysis is clear, coherent, relevant and focused. The answer demonstrates logical and multi-stage chains of reasoning in terms of cause and/or consequence.
Evaluation (6 marks) – indicative content • Magnitude: the size of the impact of tyres is significant with so many cars on the roads • Measurement of the impact of tyres may be difficult • Innovations in tyre technology may reduce impact in future • Research was based on testing one fully loaded car and one type of road surface. Emissions from tyres could be much lower or higher depending on the car-load or road surface- question reliability of test on tyres • Environmental impacts reduced thanks to tyre recycling- reduced the number of used tyres left in the environment. One billion used tyres down to 60 million • Tyres now recycled to produce fuel which produced 25% more energy than coal • The ash from the tyres is less polluting than burning coal		
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–2	Identification of generic evaluative comments. No supporting evidence/reference to context. No evidence of a logical chain of reasoning.
Level 2	3–4	Evidence of evaluation of alternative approaches. Some supporting evidence/reference to context. Evaluation is supported by a partially-developed chain of reasoning.
Level 3	5–6	Evaluation recognises different viewpoints and/or is critical of the evidence. Appropriate reference to evidence/context. Evaluation is supported by a logical chain of reasoning.

Section D

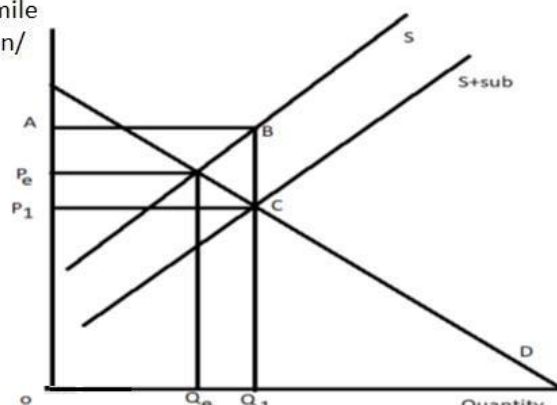
Question	In 2018 the Government of Uganda introduced an indirect tax on mobile internet usage. The aim was to raise tax revenue. Consumers had to pay 200 shillings per day to use services including Facebook, Twitter and Instagram. In the six months that followed the introduction of the tax, mobile internet usage decreased from 47.4% to 35% of the population. Evaluate the likely microeconomic effects of the introduction of this indirect tax. Indicative content
13	QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Indicative content guidance Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make, but this does not imply that any of these must be included. Other relevant points must also be credited. Knowledge, application and analysis (12 marks) – indicative content • Define indirect tax- expenditure tax • Specific tax as it is 200 shillings per day/supply shifts and does not pivot Possible impacts of indirect tax: • Increases costs to firms • Decreases supply/shifts left • Quantity consumed falls- significant fall in internet usage • Mobile internet usage decreased from 47.4% to 35% of the population • Price increases • Consumer surplus falls • Producer surplus falls/lower profits for Facebook/Twitter/Instagram • Consumer/producer incidence of the tax • Increases tax revenue for the government- 200 shillings per day per person • Tax revenue can be used to support/subsidise Ugandan companies • Reduce the willingness of firms to set up or operate in Uganda • Job losses likely within Facebook/Twitter/Instagram/mobile companies • Government can target the tax revenue to improve infrastructure • External benefits- may impact productivity positively • External costs- may reduce reward from advertising as fewer people will see advertising if consumption of mobile data falls Possible government failures: • Information gaps- where the government lacks perfect information and sets the wrong level of taxation • Lack of incentives- where the policy fails to create the incentives for firms and consumers to change their behaviour appropriately- tax may be too low • Unintended consequences- where a policy leads to an outcome that was not anticipated, this could include stopping people from accessing information/ communicating • Excessive administrative costs- where the costs to administer the tax is greater than any benefit of the government intervention

Question	With reference to Extract C, discuss the microeconomic effects of the increase in smartphone manufacturing between 2011 and 2021. Refer to external costs in your answer. Illustrate your answer with an externalities diagram.
12(e)	Indicative content guidance Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make but this does not imply that any of these must be included. Other relevant points must also be credited. Quantitative skills assessed QS4: Construct and interpret a range of standard graphical forms QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Knowledge, Application and Analysis (8 marks) – indicative content • External costs- negative impacts on third parties • Between 2011 and 2021 smartphone production increased from 472 million to 1 433 million - Increase of 961 million by 2022 • By 2022 globally 4.5 billion people owned a smartphone • In 2022 smartphones will produce 146 million tonnes of CO₂ emissions. These emissions are produced by manufacturing, transportation, usage, refurbishing and recycling of smartphones • Additional global carbon emissions contribute to global warming e.g. those living on coast at risk of flooding/farmers face drought conditions or floods • Iron, aluminium and copper are the most common metals used- huge amounts of liquid and solid waste e.g. this causes pollution which reduces house values of those living nearby • In 2015 the waste at an iron ore mine spilled in Minas Gerais, Brazil releasing 33 billion litres of waste e.g. this may have a negative impact on the fish and the fishing industry/farmers land destroyed which reduces income of farming sector • Gold mining is a major cause of deforestation-impacts people/farmers as flooding more common/humans affected by reduced oxygen levels/reduces biodiversity/reduces supply of future medicines

	Costs and benefits  • Diagram showing MSC above MPC • Q_{me} greater than Q_{so} shows over-production • P_{me} lower than P_{so} shows price paid is below social optimum • Welfare loss triangle due to third party impacts NB Maximum Level 1 if no reference to external costs NB Maximum Level 2 if no externalities diagram NB KAA may be presented as positives and negatives as evaluation or vice versa.										
G	<table border="1"> <thead> <tr> <th>Mark</th><th>Descriptor</th></tr> </thead> <tbody> <tr> <td>0</td><td>No rewardable material</td></tr> <tr> <td>Level 1</td><td>1–3 Displays isolated, superficial or imprecise knowledge and understanding of economic terms, principles, concepts, theories and models. Use of generic material or irrelevant information or inappropriate examples. Descriptive approach, which has no chains of reasoning.</td></tr> <tr> <td>Level 2</td><td>4–6 Displays elements of knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to apply knowledge and understanding to some elements of the question. Some evidence and contextual references are evident in the answer. Chains of reasoning in terms of cause and/or consequence are evident but they may not be developed fully or some stages are omitted.</td></tr> <tr> <td>Level 3</td><td>7–8 Demonstrates accurate and precise knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to link knowledge and understanding in context using relevant examples which are fully integrated to address the broad elements of the question. Analysis is clear, coherent, relevant and focused. The answer demonstrates logical and multi-stage chains of reasoning in terms of cause and/or consequence.</td></tr> </tbody> </table>	Mark	Descriptor	0	No rewardable material	Level 1	1–3 Displays isolated, superficial or imprecise knowledge and understanding of economic terms, principles, concepts, theories and models. Use of generic material or irrelevant information or inappropriate examples. Descriptive approach, which has no chains of reasoning.	Level 2	4–6 Displays elements of knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to apply knowledge and understanding to some elements of the question. Some evidence and contextual references are evident in the answer. Chains of reasoning in terms of cause and/or consequence are evident but they may not be developed fully or some stages are omitted.	Level 3	7–8 Demonstrates accurate and precise knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to link knowledge and understanding in context using relevant examples which are fully integrated to address the broad elements of the question. Analysis is clear, coherent, relevant and focused. The answer demonstrates logical and multi-stage chains of reasoning in terms of cause and/or consequence.
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	Evaluation (6 marks) – indicative content • Magnitude- a wide range of significant costs • 0.5% of total carbon emissions- small relative to other sectors/a significant impact • Smartphones are being used for longer- reducing the number of new smartphones that will be needed • Refurbished smartphone market is forecast to grow reducing the need to manufacture new smartphones. • Difficult to measure the size/value of external costs • External benefits- creates employment/reduces information gaps • The metals e.g. gold/iron are used in other sectors so external costs cannot all be attributed to smartphone manufacturing • If smartphone manufacturers use renewable sources this will reduce size of external costs as less fossil fuels used	
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–2	Identification of generic evaluative comments. No supporting evidence/reference to context. No evidence of a logical chain of reasoning.
Level 2	3–4	Evidence of evaluation of alternative approaches. Some supporting evidence/reference to context. Evaluation is supported by a partially-developed chain of reasoning.
Level 3	5–6	Evaluation recognises different viewpoints and/or is critical of the evidence. Appropriate reference to evidence/context. Evaluation is supported by a logical chain of reasoning.

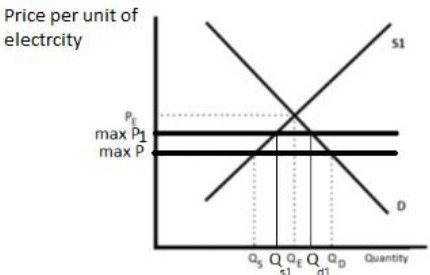
Section D

Question	Commuters in Bursa, Turkey, spent an average of 82 hours in traffic congestion in 2021. This was a 75% increase compared with 2019. Evaluate possible methods of intervention that the Turkish Government could introduce to reduce traffic congestion. Include at least one diagram in your answer.
13	Quantitative skills assessed QS4: Construct and interpret a range of standard graphical forms QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Indicative content guidance Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make, but this does not imply that any of these must be included. Other relevant points must also be credited. Knowledge, application and analysis (12 marks) – indicative content Possible measures include: - Subsidies-cash grant for alternatives- e.g. freight/passenger trains/buses/trams/planes to reduce pressure on roads - Lowens costs of production - Shifts supply to the right S to $S+\text{sub}$ - Decreases price charged to businesses/consumers P_e to P_1 - Increases quantity of train/air travel available to businesses/consumers, Q_e to Q_1 - Cost of subsidy to the government $ABCP_1$ - Reduces road use by passengers/businesses- traffic congestion reduces Price per mile of air/ train/ freight  Quantity - Increase in indirect taxation- expenditure tax charged on fuel/cars - Increase costs of production - Shifts supply to the left, S to S_1 - Increased equilibrium price charged to consumers P_e to P_1

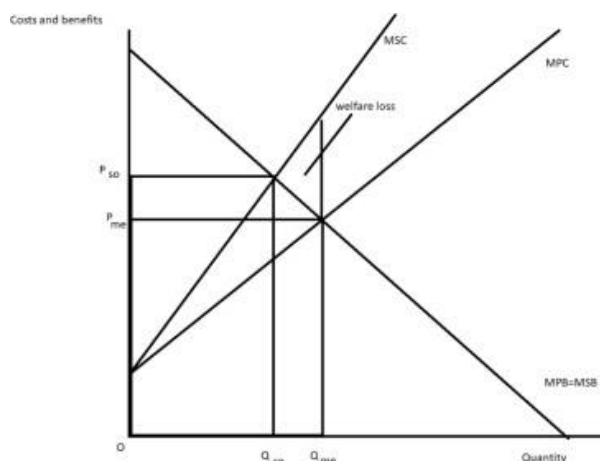
Question	With reference to Extract B, discuss the external costs associated with the production and the use of fertiliser. Illustrate your answer with an appropriate diagram. Indicative content	
12(e)	Indicative content guidance Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make but this does not imply that any of these must be included. Other relevant points must also be credited. Quantitative skills assessed QS4: Construct and interpret a range of standard graphical forms QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Knowledge, Application and Analysis (8 marks) – indicative content • External costs- negative impact on third parties • Between 1960 and 2019 there was a ten-fold increase in the use of fertiliser • The production of fertiliser requires substantial use of non-renewable resources such as gas and coal. It is responsible for 1% of all global energy use and 1.4% of all carbon emissions - this leads to the greenhouse effect and global warming- increasing the risk of flooding/droughts so affecting income of farmers • Fertiliser is produced by applying acids to phosphate rock - these acids may leak into the environment causing illness and additional health costs • The fertilisers that are used on farmland are often washed into rivers and lakes. This causes algae to develop and oxygen levels to decrease, resulting in a decline in fish stocks - impacting those in the fishing industry who will find it more difficult to find fish Costs and benefits Quantity • Diagram showing MSC above MPC • Q_{me} above Q_{so} shows overproduction • P_{me} below P_{so} shows price paid is below social optimum • Welfare loss triangle due to third party impacts	
G	Mark	Descriptor
	0	No rewardable material

Level 1	1–3	Displays isolated, superficial or imprecise knowledge and understanding of economic terms, principles, concepts, theories and models. Use of generic material or irrelevant information or inappropriate examples. Descriptive approach, which has no chains of reasoning.
Level 2	4–6	Displays elements of knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to apply knowledge and understanding to some elements of the question. Some evidence and contextual references are evident in the answer. Chains of reasoning in terms of cause and/or consequence are evident but they may not be developed fully or some stages are omitted.
Level 3	7–8	Demonstrates accurate and precise knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to link knowledge and understanding in context using relevant examples which are fully integrated to address the broad elements of the question. Analysis is clear, coherent, relevant and focused. The answer demonstrates logical and multi-stage chains of reasoning in terms of cause and/or consequence.
Evaluation (6 marks) – indicative content • Magnitude- a wide range of significant external costs • 1.4% of total carbon emissions- small relative to other sectors/a significant impact • Fertiliser use has helped increase crop production four-fold- increasing revenues for crop growers and manufacturers • Fertiliser production results in external benefits in terms of increased food supply and employment opportunities • Difficult to measure the size/value of external costs • Production of phosphate rock is focused mainly in 5 countries with 70% produced in Morocco so the external costs will be concentrated in these countries • Crop production using fertiliser is used by farmers globally and therefore has a global impact • The European Union's tradeable pollution permit scheme applies to fertiliser manufacturers – if the EU reduces the number of permits available this will reduce production of fertiliser and its associated external costs		
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–2	Identification of generic evaluative comments. No supporting evidence/reference to context. No evidence of a logical chain of reasoning.
Level 2	3–4	Evidence of evaluation of alternative approaches. Some supporting evidence/reference to context. Evaluation is supported by a partially-developed chain of reasoning.
Level 3	5–6	Evaluation recognises different viewpoints and/or is critical of the evidence. Appropriate reference to evidence/context. Evaluation is supported by a logical chain of reasoning.

Section D

Question	In the UK the maximum price for a unit of electricity for domestic consumers was £0.28 per kilowatt hour in September 2022. This was increased by the Government to £0.34 per kilowatt hour in October 2022. Evaluate the microeconomic effects of an increase in the maximum price of electricity. Indicative content
13	Quantitative skills assessed QS4: Construct and interpret a range of standard graphical forms QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Indicative content guidance Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make, but this does not imply that any of these must be included. Other relevant points must also be credited. Knowledge, application and analysis (12 marks) – indicative content Increase the maximum price - Maximum price is a price ceiling above which firms cannot charge - Maximum price set below the equilibrium price - Maximum price is increased from max P to max P₁ - Maximum price for a unit of electricity was £0.28 per kilowatt hour in September 2022. This was increased by the Government to £0.34 per kilowatt hour in October 2022 - Makes the product less affordable than it was but more affordable than equilibrium price - Consumers have less income available for consuming other goods and services - Leads to a contraction of demand – Q_D to Q_{D1} - Results in lower quantity demanded compared to lower maximum price - Leads to an extension of supply- Q_S to Q_{S1} - Results in higher quantity supplied compared to lower maximum price - Creates a disequilibrium - Excess demand is reduced Q_D-Q_S to Q_{D1}-Q_{S1}  - The lower maximum price may have resulted in some electricity companies shutting down- the higher maximum price should result in fewer firms shutting down - This was due to reduced profitability and loss making of smaller firms in the market before the maximum price was increased - Consumers are likely to buy more energy saving devices e.g. electric blankets and to invest in home insulation

Question	With reference to Extract B, discuss the likely external costs associated with cocoa production. Illustrate your answer with an externalities diagram.
	Indicative content
12(e)	Indicative content guidance Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make but this does not imply that any of these must be included. Other relevant points must also be credited. Quantitative skills assessed QS4: Construct and interpret a range of standard graphical forms QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Knowledge, Application and Analysis (8 marks) – indicative content • External costs- negative impacts on third parties • Cocoa farming has resulted in large areas of rainforest to be lost. Over the last 3 decades 70% of the forests in Ghana and Côte d'Ivoire is attributed to cocoa farming- reducing habitats for animals, reducing biodiversity, reducing amount of CO₂ taken out of the atmosphere resulting in global warming- rising sea levels- flooding • Pesticide use increased 20% between 2014 and 2019 in Ghana and Côte d'Ivoire. The pesticides used are often highly hazardous and may cause cancer. The pesticides often end up in drinking water sources and rivers resulting in additional healthcare costs for the government • Children employed in cocoa farming - increased from 5% to 24% in Ghana and Côte d'Ivoire- negative impacts on the child, their education and life prospects- the economies of Ghana/Ivory Coast will have lower prospects for economic growth External costs diagram



- Diagram showing MSC above MPC
- Q_{me} above Q_{so} shows overproduction
- P_{me} below P_{so} shows price paid is below social optimum
- Welfare loss triangle due to third-party impacts

NB Diagram required to achieve Level 3

Level	Mark	Descriptor
	0	No rewardable material
Level 1	1–3	Displays isolated, superficial or imprecise knowledge and understanding of economic terms, principles, concepts, theories and models. Use of generic material or irrelevant information or inappropriate examples. Descriptive approach, which has no chains of reasoning.
Level 2	4–6	Displays elements of knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to apply knowledge and understanding to some elements of the question. Some evidence and contextual references are evident in the answer. Chains of reasoning in terms of cause and/or consequence are evident but they may not be developed fully or some stages are omitted.
Level 3	7–8	Demonstrates accurate and precise knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to link knowledge and understanding in context using relevant examples which are fully integrated to address the broad elements of the question. Analysis is clear, coherent, relevant and focused. The answer demonstrates logical and multi-stage chains of reasoning in terms of cause and/or consequence.
Evaluation (6 marks) – indicative content • Magnitude- a wide range of significant external costs • 70% of forests lost- a significant impact • Private and external benefits may offset the external costs • Difficult to measure the size/value of external costs		

		- The effects of external costs may not be noticeable in the short-run and only emerge in the long-run 5% to 24% child labour shows an increasing problem generating larger external costs
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–2	Identification of generic evaluative comments. No supporting evidence/reference to context. No evidence of a logical chain of reasoning.
Level 2	3–4	Evidence of evaluation of alternative approaches. Some supporting evidence/reference to context. Evaluation is supported by a partially-developed chain of reasoning.
Level 3	5–6	Evaluation recognises different viewpoints and/or is critical of the evidence. Appropriate reference to evidence/context. Evaluation is supported by a logical chain of reasoning.

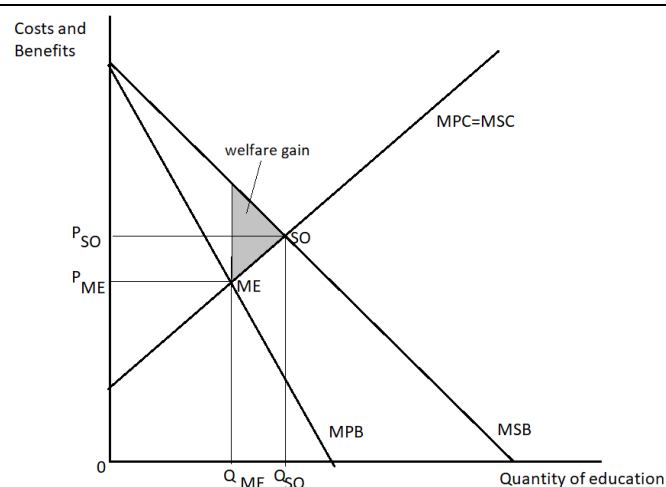
Section D

Question	In 2015 the Government of South Korea introduced a tradeable pollution permit scheme. This scheme applies to 70% of all businesses and includes power generation, manufacturing and domestic aviation. Evaluate the possible benefits of introducing a tradeable pollution permit scheme. Indicative content	
13	Quantitative skills assessed QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Indicative content guidance Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make but this does not imply that any of these must be included. Other relevant points must also be credited. Knowledge, application and analysis (12 marks) – indicative content • Tradeable pollution permit scheme- selected firms in specific industries are given a limit to the amount of pollution they can produce. These permits can be bought or sold by firms in the scheme • Affects 70% of all businesses, including power generation, manufacturing and domestic aviation • Firms have the incentive to reduce pollution in order to reduce costs • Firms may develop cleaner technologies to be able to reduce pollution so that they can sell surplus permits • Firms that are able to sell permits can increase their revenues and producer surplus/profit • Firms that pollute at above their permitted level have to incur costs as they need to purchase permits • Each year the Government of South Korea can reduce the number of permits available to be able to reduce carbon emissions/pollution • Emissions from power generation, manufacturing and aviation will be reduced • Reducing external costs- global warming, flooding, wildfires • Profits and employment may fall versus companies not involved in the scheme • Increased revenues resulting from more innovation- as businesses develop ways to reduce pollution • It creates an incentive for businesses to change their behaviour to be cleaner to reduce pollution levels N.B. Award a maximum of Level 3 if only one benefit is considered	
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	Displays isolated, superficial or imprecise knowledge and understanding of economic terms, principles, concepts, theories and models.

Question	Evaluate the private benefits and external benefits of children receiving the measles vaccination. Indicative content	
14	Indicative content guidance Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make but this does not imply that any of these must be included. Other relevant points must also be credited. Knowledge, application and analysis (12 marks) – indicative content • Vaccination protects against contraction of measles • Private benefits- benefits accrued to the person receiving the vaccine • Reduced risk of measles/ reduced risk of death/ reduced chance of absence from work and lost earnings • External benefits- benefits to third parties • External benefits diagram may be offered • Reference to market equilibrium, social optimum and welfare gain • The individual receiving the vaccination will not contract measles and reduces the risk of people they know contracting the disease • With 42% receiving the vaccination the chances of getting measles increases as you come across more people without protection. • This led to 2 381 of measles cases in first 10 months of 2017 up from 102 in 2016. • By increasing the number vaccinated you can lower number of measles cases • Reduce the number of hospital admittances and costs to health services • Employers will benefit if less employees get measles as less impact on staff absence- parents of children who are ill also miss time at work • Private benefits of those administering vaccinations- e.g. revenues, profit	
	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	Displays isolated, superficial or imprecise knowledge and understanding of economic terms, principles, concepts, theories and models. Use of generic material or irrelevant information or inappropriate

		examples. Descriptive approach, which has no chains of reasoning.
Level 2	4–6	Displays elements of knowledge and understanding of economic terms, principles, concepts, theories and models. Limited application of knowledge and understanding to economic problems in context. A narrow response or superficial, only two-stage chains of reasoning in terms of cause and/or consequence.
Level 3	7–9	Demonstrates accurate knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to apply knowledge and understanding to some elements of the question. Some evidence and contextual references are evident in the answer. Analysis is clear and coherent. Chains of reasoning in terms of cause and/or consequence are evident but they may not be developed fully or some stages are omitted.
Level 4	10–12	Demonstrates accurate and precise knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to link knowledge and understanding in context using appropriate examples which are fully integrated to address the broad elements of the question. Analysis is clear, coherent, relevant and focused. The answer demonstrates logical and multi-stage chains of reasoning in terms of cause and/or consequence.
	Evaluation (8 marks) – indicative content • Magnitude – it depends on how many are vaccinated- 97% as in 2007 would reduce measles cases dramatically • Time frame – it will take time for the vaccinations to be administered and take time to reduce number of cases • Opportunity costs - spending on this vaccine reduces the amount available for other vaccines/ health services • Can we guarantee success of the vaccination? / side effects of vaccination • Private benefits may be insignificant if measles has a limited impact on an individual's health • Difficult to quantify and give a monetary value to external/private benefits	
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	Identification of generic evaluative comments. No supporting evidence/reference to context. No evidence of a logical chain of reasoning.
Level 2	4–6	Evidence of evaluation of alternative approaches. Some supporting evidence/reference to context. Evaluation is supported by a partially-developed chain of reasoning.
Level 3	7–8	Evaluation recognises different viewpoints and/or is critical of the evidence, leading to an informed judgement. Appropriate reference to evidence/context. Evaluation is supported by a logical chain of reasoning.

Question	Evaluate possible microeconomic reasons education might be underconsumed
14	Indicative content QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Indicative content guidance Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make but this does not imply that any of these must be included. Other relevant points must also be credited. Knowledge, application and analysis (12 marks) – indicative content The proportion of 25-34 year olds who had received university education: • 70% in South Korea • 50% in the USA • 28% in Italy The individual only considers their private benefits and does not consider the external benefits e.g. ▪ lower government healthcare costs as more educated typically earn more and require less healthcare, ▪ lower government welfare costs as less likely to claim benefits ▪ lower prison costs as well educated less likely to commit crimes ▪ workers are more productive when well-educated benefiting businesses ○ Results in underconsumption of education- $Q_{ME} < Q_{SO}$ Diagram



- Information gaps- people lack information on the returns to education
- So do not know the benefits so do not invest in education
- Asymmetric information – different economic agents do not have the same information
- Consumers of education- the children and their parents may not understand the benefits of education so underestimate them and underconsume
- Rational decision- assessing the costs and benefits they maximise utility by not investing in education
- Helping at home ensures enough food can be grown to feed the family
- Working ensures the child earns money to contribute to the family's income to pay for goods and services
- In some areas large class sizes and poor-quality education lead to limited rewards from education
- Cost of education may preclude some families from being able to afford schooling university for their children
- Lack of provision of education/universities
- It may be irrational behaviour:
 - Habitual behaviour – generations not accessed education so continues
 - Poor at computation- unable to calculate the benefits of education
 - Influence of other people's behaviour- people in the community do not invest in education so others do the same/ cultural influences resulting in underconsumption

Level	Mark	Descriptor
	0	No rewardable material.

Level 1	1–3	Displays isolated, superficial or imprecise knowledge and understanding of economic terms, principles, concepts, theories and models. Use of generic material or irrelevant information or inappropriate examples. Descriptive approach, which has no chains of reasoning.
Level 2	4–6	Displays elements of knowledge and understanding of economic terms, principles, concepts, theories and models. Limited application of knowledge and understanding to economic problems in context. A narrow response or superficial, only two-stage chains of reasoning in terms of cause and/or consequence.
Level 3	7–9	Demonstrates accurate knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to apply knowledge and understanding to some elements of the question. Some evidence and contextual references are evident in the answer. Analysis is clear and coherent. Chains of reasoning in terms of cause and/or consequence are evident but they may not be developed fully or some stages are omitted.
Level 4	10–12	Demonstrates accurate and precise knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to link knowledge and understanding in context using appropriate examples which are fully integrated to address the broad elements of the question. Analysis is clear, coherent, relevant and focused. The answer demonstrates logical and multi-stage chains of reasoning in terms of cause and/or consequence.
Evaluation (8 marks) – indicative content • It is difficult to place a value on the size of any external benefits • Information is increasingly available online to correct the information failure • Universities are likely to provide information on the returns to education • Some individuals may struggle to read and do mathematics regardless of education • The estimates of the numbers not in education, not reading or doing mathematics may be inaccurate		

		May be substituting education for training to develop skills and knowledge
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	Identification of generic evaluative comments. No supporting evidence/reference to context. No evidence of a logical chain of reasoning.
Level 2	4–6	Evidence of evaluation of alternative approaches. Some supporting evidence/reference to context. Evaluation is supported by a partially-developed chain of reasoning.
Level 3	7–8	Evaluation recognises different viewpoints and/or is critical of the evidence, leading to an informed judgement. Appropriate reference to evidence/context. Evaluation is supported by a logical chain of reasoning.

Question	Between 2012 and 2021 government spending on education per person per year in high-income countries increased from \$7 507 to \$8 515. In low-income countries the increase was from \$42 to \$56 per person. Evaluate the microeconomic benefits of increased spending on education. Indicative content	
14	Quantitative skills assessed QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Indicative content guidance Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make, but this does not imply that any of these must be included. Other relevant points must also be credited. Knowledge, application and analysis (12 marks) – indicative content - Increased external benefits- positive impacts on third parties - Individuals become more skilled- able to access better paid jobs, resulting in more spending power that would result in increased demand for goods and services - More skilled workforce- means output per worker is higher – this will benefit a business in terms of lower costs - Higher income levels lead to more spending- tax revenue from indirect tax will increase- increasing money available to provide public services/ healthcare - Increasing production possibilities as each unit of labour is more skilled and becomes more productive- PPF shifts right and the number of capital and consumer goods that can be produced increases. Economic growth- increased productive potential - Businesses are able to produce more with the same amount of inputs so output of firms/supply may increase- shifting supply to the right and creating downward pressure on price - Reduces market failure- where the market leads to an inefficient allocation of resources- the result is greater efficiency as education is consumed at the social optimum level - Closing information gaps- where consumers or producers lack information to make rational decisions - Reducing incidences of asymmetric information- where one economic agent has more knowledge than another- reducing the likelihood of producers exploiting consumers or vice versa - Private benefits achieved by consumers of education, such as developed knowledge, improved skills, better job, higher pay, more utility from being able to buy more/better goods	
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	Displays isolated, superficial or imprecise knowledge and understanding of economic terms, principles, concepts, theories and models. Use of generic material or irrelevant information or inappropriate examples.



		Descriptive approach which has no chains of reasoning.
Level 2	4–6	Displays elements of knowledge and understanding of economic terms, principles, concepts, theories and models. Limited application of knowledge and understanding to economic problems in context. A narrow response or superficial, only two-stage chains of reasoning in terms of cause and/or consequence.
Level 3	7–9	Demonstrates accurate knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to apply knowledge and understanding to some elements of the question. Some evidence and contextual references are evident in the answer. Analysis is clear and coherent. Chains of reasoning in terms of cause and/or consequence are evident but they may not be developed fully or some stages are omitted.
Level 4	10–12	Demonstrates accurate and precise knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to link knowledge and understanding in context, using appropriate examples which are fully integrated to address the broad elements of the question. Analysis is clear, coherent, relevant and focused. The answer demonstrates logical and multi-stage chains of reasoning in terms of cause and/or consequence.
	Evaluation (8 marks) – indicative content - Government failures- where the spending on education results in a net welfare loss - Information gaps mean the areas of education receiving funding are not appropriate - Unintended consequences- education spending may result in an increase in supply of some workers and a decrease in supply in other areas - Excessive administration costs- to implement more education spending more needs to be spent administering it- if these costs exceed the extra funding to schools then it is a government failure - Opportunity costs- the cost of the next best alternative forgone- e.g. reduced funding for healthcare - The impact of education spending takes a long time before it affects businesses as you have to wait for people to finish their education - The increase in spending on education in low-income countries is just \$14 per person which may not have a significant impact/the increase in spending in high-income countries is \$1008 so is likely to have a more significant impact - The increase in spending in low income countries is 33% and high income countries 13%- so more impact in low income countries	
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	Identification of generic evaluative comments. No supporting evidence/reference to context. No evidence of a logical chain of reasoning.
Level 2	4–6	Evidence of evaluation of alternative approaches. Some supporting evidence/reference to context.

		Evaluation is supported by a partially-developed chain of reasoning.
Level 3	7–8	Evaluation recognises different viewpoints and/or is critical of the evidence, leading to an informed judgement. Appropriate reference to evidence/context. Evaluation is supported by a logical chain of reasoning.

Section A

Question	Quantitative skills assessed	Answer	Mark
1		The only correct answer is A B is not correct because private goods are excludable C is not correct because private goods are rival D is not correct because this describes a public good	(1)
2	QS8: Make calculations of elasticity and interpret the result QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	The only correct answer is D A is not correct because legal constraints on production will affect elasticity of supply B is not correct because large stocks will affect elasticity of supply C is not correct because a product with many substitutes will result in highly elastic demand	(1)
3	QS8: Make calculations of elasticity and interpret the result QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	The only correct answer is B A is not correct because the PED value is between -1 and -infinity C is not correct because there is no data on the change in income D is not correct because there is no data on the change in income	(1)
4	QS4: Construct and interpret a range of standard graphical forms QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	The only correct answer is C A is not correct because both consumer surplus and price will increase B is not correct because consumer surplus will increase D is not correct because price will increase	(1)
5	QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	The only correct answer is C A is not correct because if consumers experienced inertia they would not have used the energy to cancel their subscription B is not correct because if consumers experienced habitual behaviour they would keep their Amazon subscription D is not correct because rational consumers maximise their utility by switching	(1)

Section A

Question	Quantitative skills assessed	Answer	Mark
1	QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	The only correct answer is C A is not correct because this is an example of asymmetric information B is not correct because this is an example of asymmetric information D is not correct because market failure occurs when there is asymmetric information	(1)
2	QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	The only correct answer is D A is not correct because consumer goods gain utility for an individual B is not correct because the sea defences have an opportunity cost C is not correct because the sea defences are non-excludable and non-rival whereas private goods are excludable and rival.	(1)
3	QS8: Make calculations of elasticity and interpret the result QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	The only correct answer is B A is not correct because complements have a negative XED C is not correct because unrelated goods have an XED of 0 D is not correct because there is no information on income	(1)
4	QS4: Construct and interpret a range of standard graphical forms QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	The only correct answer is A B is not correct because this is the area of consumer surplus C is not correct because the area the government will spend is GHKJ D is not correct because this is the total revenue to farmers	(1)
5	QS2 Calculate, use and understand percentages, percentage changes and percentage point changes QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	The only correct answer is B A is not correct because more electricity is generated using renewable resources C is not correct because 21% is the total for non-renewable resources D is not correct because 79% is the total for renewable resources	(1)

Section C

Question	Define the term 'public good'. (Extract A, line 13)	Mark
	Answer	
12 (a)	QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Knowledge 2 Up to 2 marks for definition of 'public good.' e.g.: • Non-excludable (1) and Non-rival (1) If no reference to the two characteristics award a maximum of 1 mark for one of the following • The free rider problem / • Where the private sector would be unable to profit from producing the product / • South African government provides 45 active lighthouses (1)	(2)

Question	With reference to the provision of street lights, explain what is meant by the term 'public good'. Answer	Mark
8	Knowledge 2, Application 2 Knowledge 2 marks for defining 'public good.' • A product that is both non-excludable (1) and non-rival (1) Application 2 marks for applying to the provision of street lights e.g.: • Street lights are non-excludable because it is impossible to prevent anyone from benefitting from the light (1) • Street lights are non-rival as when one person benefits from the light it does not reduce the benefit gained by others nearby (1) • People would free ride the street lights by not paying but benefiting from them (1) making it unprofitable for private sector firms to provide street lights (1) • Firms are reluctant to provide street lights due to the free rider problem (1) • Public goods are normally provided by the government/ customers can use the public goods free of charge (1)	(4)

Question	Most of the Netherlands is below sea level and is therefore liable to flooding. The Dutch Government spends €1 billion per year on flood defences. Explain one reason for the provision of this public good by the Dutch Government. Answer	Mark
9	QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Knowledge 1, Application 1, Analysis 2 Knowledge 1 mark for definition of public goods e.g.: - Public goods are non-excludable and non-rival (1) Application 1 mark for applying to the stem, e.g.: - The Dutch Government spends €1 billion per year on flood defences (1) Analysis Up to 2 marks for explaining one reason e.g.: - Due to the free rider problem (1) consumers would use the flood defences without paying (1) - Not being able to generate revenue from providing flood defences (1) means it is unlikely firms will generate profit from providing the goods (1) - Due to non-excludability people can benefit from flood defences (1) without paying for their provision or upkeep (1) - Due to non-rivalry one person benefiting does not reduce the protection for others (1) so if one person was to put flood defences in place all locals would benefit without paying (1) - Flood defences would not be provided by the private sector (1) as the private sector has no profit incentive to provide flood defences (1)	(4)

Question	Explain one microeconomic reason why the Singapore Government provides streetlights.	Mark
9	Answer Knowledge 1, Application 1, Analysis 2 QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Knowledge 1 mark for definition of market failure or public goods e.g.: • inefficient allocation of resources Or non-excludable and non-rival (1) Application 1 mark for applying to the stem, e.g.: • Streetlights are a public good/ • 95 000 streetlights replaced/ • 19 000 streetlights replaced on average each year (1) Analysis Up to 2 marks for explaining one reason e.g.: • Private sector firms are unable to profit from supplying public goods (1) as consumers will free ride them without paying / it is impossible to exclude people (1) • When one person consumes the good it does not limit the consumption by others (1) so that it is difficult for private sector firms to charge people to use the good (1) • The price mechanism leads to the private sector not allocating enough resources to public goods (1) so the government steps in to correct the market failure (1) • Governments provide them as they ensure safety (1) and private sector firms not providing them could mean it is unsafe (1)	(4)

Question	With reference to lighthouses, explain the difference between 'non-rivalry' and 'non-excludability'.	Mark
9	Answer	
	Knowledge 2, Application 2 QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Knowledge 1 mark for definition of non-rivalry e.g.: - Where the consumption by one person does not reduce the benefit for another person/ where people can consume a good without affecting the benefit derived by others (1K) 1 mark for definition of non-excludability e.g.: - Where you cannot prevent another person from consuming the same good / when it is impossible to provide a good without others being able to benefit from it (1K) Application Up to 2 marks for applying to stem e.g.: 24 300 lighthouses globally / Number of losses of ships at sea reduced from 109 to 38 (1AP) - Lighthouses are a public good (1AP) - The consumption of light from a lighthouse by one ship does not reduce the light available to other ships at sea (1AP) - One ship's consumption of light does not exclude/prevent another ship consuming the same light (1AP)	(4)

Question	With reference to Extract C, examine whether national parks in New Zealand are public goods. Answer	Mark
12(d)	QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms Knowledge 2, Application 2, Analysis 2, Evaluation 2 Knowledge and Analysis up to 2 knowledge marks for identifying two points; and up to 2 analysis marks for linked explanations, e.g. - consumption is non-excludable (1K) as no-one can be prevented from using the national park land (1AN) - there is non-rivalry (1K) as one person enjoying the national park has little impact on others (1AN) - the land is too large to be able to exclude people (1K) as there would be too many fences to put up around each national park (1AN) - people will free ride the park (1K) by using it without paying (1AN) Application Up to 2 marks for reference to Extract C 13 national parks/30 000km² (1AP) - So much space that that an individual will rarely meet another person (1AP) - Parks can be explored on foot/by boat/car (1AP) - Walk, run or cycle across the national parks without charge (1AP) Evaluation Up to 2 marks for evaluative comments (2+0 or 1+1), e.g.: - Very busy in the summer season meaning there may be rivalry with other national park visitors (1+1) - Car parking spaces are hard to find making national parks excludable (1+1) - Some activities like skiing or kayaking are paid for suggesting they are excludable (1+1) - At different times of the year, when the weather is good it is likely rivalry may emerge (1+1) - It depends on the activity being undertaking in the park as the requirement for equipment may make it excludable (1+1)	(8)

Question	With reference to Figure 1, Extract A and Extract B, discuss the likely microeconomic effects of a housing market bubble in New Zealand. Indicative content
12(e)	Indicative content guidance Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make but this does not imply that any of these must be included. Other relevant points must also be credited. Quantitative skills assessed QS4: Construct and interpret a range of standard graphical forms QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Knowledge, Application and Analysis (8 marks) – indicative content • Housing market bubble: the price of an asset is above the true value often the result of speculation • Explicit reference to Figure 1 e.g. prices increased 20.4% in Marlborough and 23.7% in Manawatu/Whanganui • An average house now costs NZ\$925 000 • Houses are 40% overvalued- going from 8.6x to 10x average income • New Zealand PM many buyers are speculators- In 2020 approximately 15 000 buyers owned five or more properties Negative effects • 1% of New Zealand's population are homeless and the housing market bubble has pushed prices beyond their earnings. • Consumers may struggle to find it affordable to buy a home when they require 10x income to purchase • Rental prices may also rise affecting those that rent • Problem with a housing market bubble is that it may burst • People will realise that the houses are over-valued and there will be a correction when prices fall • Speculators may make profits by selling at the peak- but if some waited they may make losses • Home owners may pay a high price for the property but the true value of the property may be less

Question Number	In 2017 floods in Bangladesh resulted in 8 million people having to move from their homes. 100 000 houses were destroyed and many crops were lost. The Institute of Water and Flood Management claim that there had been an under-investment in flood defences. Evaluate reasons for this under-investment in flood defences. Make reference to public goods in your answer.
14	Indicative content guidance Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make but this does not imply that any of these must be included. Other relevant points must also be credited. Knowledge, application and analysis (12 marks) – indicative content • Public goods defined- non-rival and non-excludable. • Non-rival: one person's consumption does not negatively impact on another consumption. • Non-excludable: one person's consumption does not prevent another from consuming. • Flood defence is a public good as ◦ If flood defence is in place then protecting one house does not prevent the protection of another house ◦ If flood defence is protecting one house it does not reduce the protection offered to the next house • Free riders: if one person puts in place flood defences others will benefit. • This means private individuals are unlikely to contribute to flood defences, as they know they would benefit anyway if they do not contribute/ or that others would benefit if they did. • This leads to an under-provision and under-investment in the public good of flood defences. • This is an example of market failure as there is an inefficient allocation of resources. • The cost of flood defences may exceed the costs of damage from flooding. • There may be imperfect market information- where people do not know the benefits of flood defence/ costs of not putting in place flood defences. • May be a lack of Government funds to afford flood defences/ May be difficult to effectively defend against flooding. • Bangladesh is a low-income country and finance for flood defences is limited. • May lack technology/ engineers to put in place flood defences

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	Displays isolated, superficial or imprecise knowledge and understanding of economic terms, principles, concepts, theories and models. Use of generic material or irrelevant information or inappropriate examples. Descriptive approach, which has no chains of reasoning.
Level 2	4–6	Displays elements of knowledge and understanding of economic terms, principles, concepts, theories and models. Limited application of knowledge and understanding to economic problems in context. A narrow response or superficial, only two-stage chains of reasoning in terms of cause and/or consequence.
Level 3	7–9	Demonstrates accurate knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to apply knowledge and understanding to some elements of the question. Some evidence and contextual references are evident in the answer. Analysis is clear and coherent. Chains of reasoning in terms of cause and/or consequence are evident but they may not be developed fully or some stages are omitted.
Level 4	10–12	Demonstrates accurate and precise knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to link knowledge and understanding in context using appropriate examples which are fully integrated to address the broad elements of the question. Analysis is clear, coherent, relevant and focused. The answer demonstrates logical and multi-stage chains of reasoning in terms of cause and/or consequence.
	Evaluation (8 marks) – indicative content - The cost of flood defences may be less than the costs of damage from flooding as 8 million moved from their homes, crops destroyed and 100 000 homes lost. - It is not necessarily imperfect information but nature is unpredictable and it is hard to predict amount of rainfall or ice melting in mountains. - Measurement problem: it is hard to estimate the amount of flood defence that is needed. - Opportunity costs if resources are used for flood defence than funds are not available for education or health care. - Provision of information: Government could correct any information failure.	

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	Identification of generic evaluative comments. No supporting evidence/reference to context. No evidence of a logical chain of reasoning.
Level 2	4–6	Evidence of evaluation of alternative approaches. Some supporting evidence/reference to context. Evaluation is supported by a partially-developed chain of reasoning.
Level 3	7–8	Evaluation recognises different viewpoints and/or is critical of the evidence, leading to an informed judgement. Appropriate reference to evidence/context. Evaluation is supported by a logical chain of reasoning.

Question	Evaluate the advantages of state provision of goods and services. Indicative content
14	QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Indicative content guidance Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make but this does not imply that any of these must be included. Other relevant points must also be credited. Knowledge, application and analysis (12 marks) – indicative content • State provisions is where government uses taxation to provide goods and services • UAE- provides free education and healthcare, flood defences and world tallest lighthouse Advantages • Reduces the problem of underconsumption and production of goods with positive externalities- underconsumption as people underestimate the benefits of consuming a good- state provided free healthcare/free primary and secondary education • Reduces the problem of overconsumption and production of goods with negative externalities- overproduction as firms ignore negative impact on third parties- government imposes indirect taxes on firms producing external costs • Reduces the problem of underprovision of public goods- non-rival and non-excludable- free rider problem makes provision by the private sector unprofitable so government steps in e.g. lighthouse/flood defences • Ensures safety of the public by preventing flooding and ships hitting rocks • Reduces the problem of information gaps/Imperfect market information- information failure means consumers may under-consume goods such as health care and education so the government provides. State provides information to fill gaps- e.g. on impact of high sugar consumption • Ensures provision for all including those on low incomes who would otherwise be unable to afford the goods/services • May help to prevent exploitation of consumers by private monopolies • Can increase the number that are employed in construction/in healthcare/education system

	Diagrams may be drawn to illustrate underproduction/overconsumption
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Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	Displays isolated, superficial or imprecise knowledge and understanding of economic terms, principles, concepts, theories and models. Use of generic material or irrelevant information or inappropriate examples. Descriptive approach, which has no chains of reasoning.
Level 2	4–6	Displays elements of knowledge and understanding of economic terms, principles, concepts, theories and models. Limited application of knowledge and understanding to economic problems in context. A narrow response or superficial, only two-stage chains of reasoning in terms of cause and/or consequence.
Level 3	7–9	Demonstrates accurate knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to apply knowledge and understanding to some elements of the question. Some evidence and contextual references are evident in the answer. Analysis is clear and coherent. Chains of reasoning in terms of cause and/or consequence are evident but they may not be developed fully or some stages are omitted.
Level 4	10–12	Demonstrates accurate and precise knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to link knowledge and understanding in context using appropriate examples which are fully integrated to address the broad elements of the question. Analysis is clear, coherent, relevant and focused. The answer demonstrates logical and multi-stage chains of reasoning in terms of cause and/or consequence.

	Evaluation (8 marks) – indicative content Disadvantages • Government failure where there is a net welfare loss through: ○ information gaps ○ lack of incentives ○ unintended consequences ○ excessive administrative costs ○ moral hazard • Government provision can be less efficient compared to the free market- lack of competition • Opportunity costs associated with the government spending leaving less money for other priorities • Less choice for consumers • Reduction in freedom • High levels of taxation to fund spending Other evaluation • It is difficult to place a value on the size of any external benefits/costs to know how much to provide • Information failure is increasingly solved by the internet • Magnitude of spending e.g. \$136 million needs to judge this against the benefit of flood defences
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Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	Identification of generic evaluative comments. No supporting evidence/reference to context. No evidence of a logical chain of reasoning.
Level 2	4–6	Evidence of evaluation of alternative approaches. Some supporting evidence/reference to context. Evaluation is supported by a partially-developed chain of reasoning.
Level 3	7–8	Evaluation recognises different viewpoints and/or is critical of the evidence, leading to an informed judgement. Appropriate reference to evidence/context. Evaluation is supported by a logical chain of reasoning.

Question	Define the term 'information gap' (Extract B, line 3). Answer	Mark
12 (a)	Knowledge 2 Up to 2 marks for defining 'information gap', e.g.: • Where economic agents do not have full information (1) for example about the external costs associated with e.g. plastics/ meaning they are unable to calculate the costs and benefits associated with consumption (1) • Where there is a gap between the knowledge of consumers and producers (1) in that producers may know more about the damaging impact than consumers e.g. plastics (1) • Where economic agents lack information (1) to be able to maximise utility (1) • A form of market failure (1) where buyers and sellers do not have perfect information (1) • Asymmetric information is where the information held by buyers and sellers is different (1) meaning one has better information than the other (1) • Consumers and producers do not have enough information (1) to make a rational choice (1)	(2)

Question Number	With reference to Extract B, examine two possible effects of information gaps on the consumption of sugar.	Mark
	Answer	
12(d)	Knowledge 2, Application 2, Analysis 2, Evaluation 2 Knowledge and Analysis 1 mark for knowledge of information gap, e.g.: • Definition of information gaps: where an economic agent lacks information OR • Definition of asymmetric information: where one economic agent holds more information than another economic agent (1K) Up to 2 marks for identifying two effects (2) and 1 mark for linked expansion of each effect of information gaps (2), e.g.: • People being unaware of the recommended amount of sugar (1K) means they consume amounts in excess of the recommendation (1AN) • Consumers being unaware of the risks associated with excess sugar (1K) will put themselves at greater risk of depression/cancer (1AN) • Producers may know more about the impact of sugar consumption than consumers (1K) and may not make the public aware of this in order to avoid losing consumers (1AN) • The overconsumption will put additional pressure on health services (1K) who have to treat more cases of cancer, depression and obesity (1AN) • Manufacturers may continue to add sugar to recipes (1K) knowing many consumers do not know the damaging impact (1AN) Application Up to 2 marks for reference to the given sources, e.g.: • In USA average consumption is 73 grams per day (1) • In USA recommendation of 50 grams per day (1) • Body can process 25g/ in excess of 25g it will turn into fat (1) • Increased risk of heart disease 38% (1) • Increased risk of many types of cancer (1) • 23% more likely to experience depression (1)	(8)

	Evaluation Up to 2 marks for evaluative comments, (2+0, 1+1) e.g.: • There are different sugars and some may be better for you than others (1) and consumption of these may not be so damaging (1) • The issue of information gaps may reduce over time (1) with the internet closing the information gap/as the government can provide information to close the gap (1) • Magnitude: the extent to which people are unaware of the damage caused by sugar consumption (1) may be significant/insignificant for different groups (1) • Difficult to measure the size of the gap (1) as people may know the risks but be willing to take a chance (1) • Extra sugar consumption may have a time delay (1) before impact is felt (1) • Sugar is addictive (1) so consumers may be unable to stop consuming it (1)	
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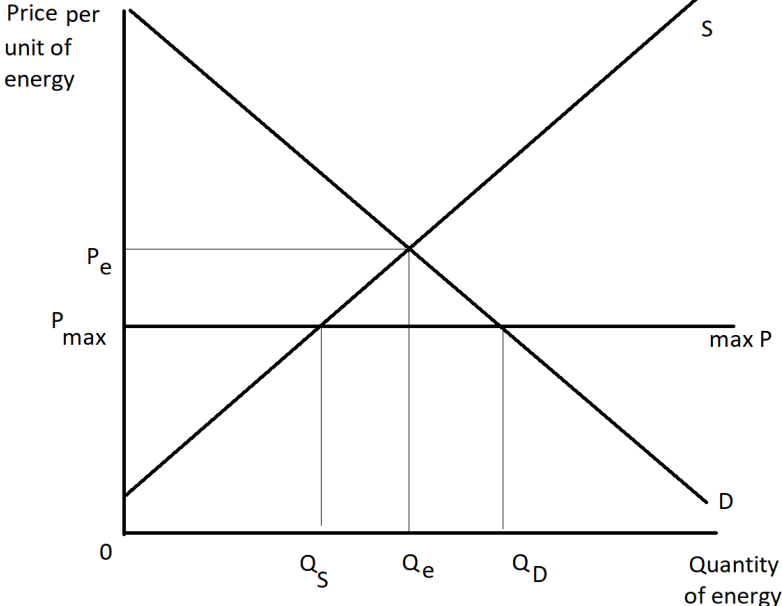
Question Number	With reference to Extract C, discuss the likely effects of the increase in the subsidy for sugar production. Illustrate your answer with an appropriate diagram. Indicative content
12(e)	Indicative content guidance Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make but this does not imply that any of these must be included. Other relevant points must also be credited. Quantitative skills assessed QS4: Construct and interpret a range of standard graphical forms QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Knowledge, Application and Analysis (8 marks) – indicative content • Definition of 'subsidy' – cash grants/payments by a government to suppliers, reduce the costs for suppliers encouraging them to increase supply • Increased subsidy from 55 rupees a tonne to 138 rupees a tonne • Diagram showing increased subsidy Price of sugar, A per tonne Quantity of sugar, tonnes

Section D

Question Number	'The HPV vaccine is recommended for all adults in the USA because it reduces the risk of cancer by 88%. If the HPV vaccine was given to all adults 925 000 cases of cancer would be prevented. However only 18.3% of adults were vaccinated between 2011 and 2014 preventing 170 000 cases of cancer.' Evaluate why only 18.3% of adults were vaccinated. Indicative content	
13	Indicative content guidance Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make, but this does not imply that any of these must be included. Other relevant points must also be credited. Knowledge, application and analysis (12 marks) – indicative content • Rational consumers – will maximise their utility. • They will maximise their utility by having the vaccine as it reduces their risk of developing cancer. • Reduces risk of cancers by 88%. • Prevented 170 000 cancers- could have prevented 925 000 • US has private healthcare and low take-up may relate to costs of the vaccine. • The influence of other people's behaviour (herding) may mean people do not have the vaccine as their friends may also avoid the vaccine. • Habitual behaviour- this is a new vaccine and people will not yet be in the habit of having this vaccine. • Inertia- customers may not have the energy to arrange appointments and to have the vaccination. • Poor computational skills may exist where they cannot calculate the benefit in terms of lower cancer risk. • Asymmetric information/ information gaps may exist where people do not have enough information to calculate possible benefits of receiving vaccine compared to the costs of vaccination. • Government needs to better inform people of the benefits of having the vaccine or the risks of not having the vaccine. • People may fear that the new vaccine may have side effects or unknown complications- a rational decision. • People may ignore any external benefits- reducing costs to health services and leads to under consumption of the vaccine. • External benefits- benefits to third parties- so consumers may under consume-as they do not consider the third-party effects • Low income families will be unable to afford vaccinations	
Level	Mark	Descriptor

	0	No rewardable material.
Level 1	1–3	Displays isolated, superficial or imprecise knowledge and understanding of economic terms, principles, concepts, theories and models. Use of generic material or irrelevant information or inappropriate examples. Descriptive approach which has no chains of reasoning.
Level 2	4–6	Displays elements of knowledge and understanding of economic terms, principles, concepts, theories and models. Limited application of knowledge and understanding to economic problems in context. A narrow response or superficial, only two-stage chains of reasoning in terms of cause and/or consequence.
Level 3	7–9	Demonstrates accurate knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to apply knowledge and understanding to some elements of the question. Some evidence and contextual references are evident in the answer. Analysis is clear and coherent. Chains of reasoning in terms of cause and/or consequence are evident but they may not be developed fully or some stages are omitted.
Level 4	10–12	Demonstrates accurate and precise knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to link knowledge and understanding in context, using appropriate examples which are fully integrated to address the broad elements of the question. Analysis is clear, coherent, relevant and focused. The answer demonstrates logical and multi-stage chains of reasoning in terms of cause and/or consequence.
Evaluation (8 marks) – indicative content • Measurement problem – it is difficult to measure the size of any external benefits/ it is difficult to measure truly how many cancers the vaccine would prevent- figures given are estimates. • Magnitude – a significant number not taking the vaccine with only 18.3% take up. • Time frame – in the short-term people may not take the vaccine but over the long-term with more information and more being protected more will take the vaccine. • Some may be acting rationally as they fear there are unknown problems with the vaccine. • Opportunity costs of having the vaccine. • Large numbers of poor households in the USA cannot afford the vaccine.		
Level	Mark	Descriptor
	0	No rewardable material.

Level 1	1–3	Identification of generic evaluative comments. No supporting evidence/reference to context. No evidence of a logical chain of reasoning.
Level 2	4–6	Evidence of evaluation of alternative approaches. Some supporting evidence/reference to context. Evaluation is supported by a partially-developed chain of reasoning.
Level 3	7–8	Evaluation recognises different viewpoints and/or is critical of the evidence, leading to an informed judgement. Appropriate reference to evidence/context. Evaluation is supported by a logical chain of reasoning.

Question Number	'12 million consumers within the UK are on standard variable tariffs for their gas and electricity. One energy supplier, RWE npower, charged consumers on the standard variable rate £1 166 per year. However, its cheapest deal was £935 per year. Consequently the UK Government is introducing a maximum price for gas and electricity.' Evaluate the likely impact of the introduction of a maximum price for gas and electricity. Indicative content
14	Indicative content guidance Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make but this does not imply that any of these must be included. Other relevant points must also be credited. Knowledge, application and analysis (12 marks) – indicative content - Maximum price- the price ceiling above which price cannot be charged. - The idea is to protect consumers from being charged very high prices for gas and electricity. - When they pay £1 166 it is a high price compared to the cheapest deal- £231 more expensive. - Diagram may be offered.  - The price charged to standard variable rate customers should fall from P_e to $P_{\max}$. - This will see a contraction in quantity supplied to Q_s as providing

Question Number	Indicative content
14	Indicative content guidance Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make but this does not imply that any of these must be included. Other relevant points must also be credited. Knowledge, application and analysis (12 marks) – indicative content • Asymmetric information- where one party has more information than another • Information gap- where consumers lack information about the risks of being uninsured • 10 million consumers not taking out travel insurance may lack information to make decision to be insured • 30% of consumers have to make a claim, yet many do not take out insurance – consumers may not be aware about the numbers that need to claim • £5 620 average medical bill claim-consumers unlikely to be aware of these costs when travelling abroad • The lack of information could lead to underconsumption compared to social optimum quantity of output • Without insurance if someone had a plane cancelled they would have to pay for replacement travel/if injured they would have to pay for their own medical treatments • Consumers may lack funds/ face high opportunity costs- have to give up consumption of other goods • Rational consumers maximise utility • The decision not to insure may be based on the assessment of risks, benefits and costs of insurance - may be rational behaviour • It may be rational decision given high costs associated with taking out travel insurance • Irrational consumers do not maximise utility • Decision not to insure may be due to computational issues/ inertia/ herding/ habitual behaviour in not purchasing • Lack of perfect information means consumers unable to assess decision

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	Displays isolated, superficial or imprecise knowledge and understanding of economic terms, principles, concepts, theories and models. Use of generic material or irrelevant information or inappropriate examples. Descriptive approach, which has no chains of reasoning.
Level 2	4–6	Displays elements of knowledge and understanding of economic terms, principles, concepts, theories and models. Limited application of knowledge and understanding to economic problems in context. A narrow response or superficial, only two-stage chains of reasoning in terms of cause and/or consequence.
Level 3	7–9	Demonstrates accurate knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to apply knowledge and understanding to some elements of the question. Some evidence and contextual references are evident in the answer. Analysis is clear and coherent. Chains of reasoning in terms of cause and/or consequence are evident but they may not be developed fully or some stages are omitted.
Level 4	10–12	Demonstrates accurate and precise knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to link knowledge and understanding in context using appropriate examples which are fully integrated to address the broad elements of the question. Analysis is clear, coherent, relevant and focused. The answer demonstrates logical and multi-stage chains of reasoning in terms of cause and/or consequence.
	Evaluation (8 marks) – indicative content - Information gaps may be filled by insurance companies and governments sharing information on costs - Internet helps provide better information on likely costs if a consumer has an accident on holiday - Some of the 10 million not taking insurance may be on low risk/ short holidays and be less likely to insure - May be rational as some may perceive the likelihood of successfully making a claim to be low - Magnitude- 10 million is a large number of consumers not taking out insurance/ may be a smaller numbers compared to the number of travellers in a given year	

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	Identification of generic evaluative comments. No supporting evidence/reference to context. No evidence of a logical chain of reasoning.
Level 2	4–6	Evidence of evaluation of alternative approaches. Some supporting evidence/reference to context. Evaluation is supported by a partially-developed chain of reasoning.
Level 3	7–8	Evaluation recognises different viewpoints and/or is critical of the evidence, leading to an informed judgement. Appropriate reference to evidence/context. Evaluation is supported by a logical chain of reasoning.

Question	Many consumers do not buy travel insurance before going on holiday abroad despite substantial costs if they need medical care. Many car drivers do not provide complete and accurate information to car insurance companies when insuring their cars. Evaluate the microeconomic effects of imperfect information on insurance markets. Indicative content				
14	Quantitative skills assessed QS4: Construct and interpret a range of standard graphical forms QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Indicative content guidance Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make but this does not imply that any of these must be included. Other relevant points must also be credited. Knowledge, application and analysis (12 marks) – indicative content • Information failure- where economic agents lack the information to make optimal decisions • Asymmetric information- where economic agents have different levels of information • Market failure- where the market leads to an inefficient allocation of resources • Many consumers holiday abroad without travel insurance despite substantial costs when they need medical care e.g. many are unaware of the possible large costs if they need to be returned home in an emergency • This results in underconsumption of travel insurance • When taking out health insurance policies many consumers fail to declare all information. This means the policy offered does not take account of the risks for the individual- it means that the insurance company may end up paying out more in claims • Incomplete information may result in claims being rejected • For example, on medical or health insurance they may not declare they smoke or drink alcohol regularly which increases the risk of a claim • Car drivers don't tell the whole truth on applications- meaning that the driver is a higher risk and therefore more likely to claim • When making claims the consumer may leave information out that would result in a lower or no payout- for example, they left the car or house unlocked or without the security alarm set • Imperfect information results in insurance companies making larger payouts increasing costs • These higher costs result in consumers having higher premiums / paying more for their insurance policy				
Level	<table border="1"> <tr> <td data-bbox="432 1839 523 1872">Mark</td><td data-bbox="523 1839 1369 1872">Descriptor</td></tr> <tr> <td data-bbox="432 1872 523 1899">0</td><td data-bbox="523 1872 1369 1899">No rewardable material.</td></tr> </table>	Mark	Descriptor	0	No rewardable material.
Mark	Descriptor				
0	No rewardable material.				

Level 1	1–3	Displays isolated, superficial or imprecise knowledge and understanding of economic terms, principles, concepts, theories and models. Use of generic material or irrelevant information or inappropriate examples. Descriptive approach, which has no chains of reasoning.
Level 2	4–6	Displays elements of knowledge and understanding of economic terms, principles, concepts, theories and models. Limited application of knowledge and understanding to economic problems in context. A narrow response or superficial, only two-stage chains of reasoning in terms of cause and/or consequence.
Level 3	7–9	Demonstrates accurate knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to apply knowledge and understanding to some elements of the question. Some evidence and contextual references are evident in the answer. Analysis is clear and coherent. Chains of reasoning in terms of cause and/or consequence are evident but they may not be developed fully or some stages are omitted.
Level 4	10–12	Demonstrates accurate and precise knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to link knowledge and understanding in context using appropriate examples which are fully integrated to address the broad elements of the question. Analysis is clear, coherent, relevant and focused. The answer demonstrates logical and multi-stage chains of reasoning in terms of cause and/or consequence.
Evaluation (8 marks) – indicative content - Market failure may be reduced as the insurance company can gain permission to find medical records/ contact doctor - Information can be provided about costs of medical evacuation so consumers can take account of these costs - Consumers may have the information but with the chance of it happening being so small they calculate that is a risk worth taking not having the insurance - Consumers not taking out medical/ health insurance may be because they cannot afford the premium - The internet may help close the information gap that results in the market failure - Market failure in insurance markets may be the result of irrational behaviour rather than the result of imperfect information (habitual behaviour, inertia, herding and calculation problems) - Insurance companies may share information on consumers who may say they have not claimed in 5 years. This can be checked by the insurance company		
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	Identification of generic evaluative comments. No supporting evidence/reference to context. No evidence of a logical chain of reasoning.
Level 2	4–6	Evidence of evaluation of alternative approaches.

		Some supporting evidence/reference to context. Evaluation is supported by a partially-developed chain of reasoning.
Level 3	7–8	Evaluation recognises different viewpoints and/or is critical of the evidence, leading to an informed judgement. Appropriate reference to evidence/context. Evaluation is supported by a logical chain of reasoning.

Question Number	Answer	Mark
9	Knowledge 1, Application 1, Analysis 2 QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Knowledge 1 mark for knowledge of moral hazard • Situation where one party gets involved in a risky event knowing that it is protected against the risk/ • Another party will incur the cost of a decisions (1) Analysis Up to 2 marks for explaining the concept of moral hazard linked to health insurance, e.g.: • The citizens are insured so take more risks (1) as they know that they will be covered by the insurer if they attend hospital (1) • The risk is transferred from the individual to the insurer (1) which may mean individuals are more willing to take risks/which increases the risk of injury (1) Application 1 mark for applying to the stem, e.g.: • 10 000 Insured citizens had more hospital admissions/emergency department visits than the 45 000 without insurance (1)	(4)

Question	With reference to health insurance, explain what is meant by moral hazard.	Mark
	Answer	
8	Knowledge 1, Application 1, Analysis 2 QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Knowledge 1 mark for understanding moral hazard e.g.: • Where the consumer does not suffer from the consequences of their action/ • Where the costs associated with risks of an action are transferred to another party (1K) Application 1 mark for applying to health insurance e.g.: • 68% of those without health insurance visited a dentist but 88% of those with health insurance visited a dentist/ • Those with health insurance visited the dentist more often than those without health insurance (1AP) Analysis up to 2 marks for linked expansion • The consumers that are insured take more risks with their health (1AN) and are therefore more likely to need healthcare and make a claim/ so they are less careful with their health (1AN) • The consumer is more likely to smoke/eat sugary food/drink fizzy drinks (1AN) as any healthcare costs to treat teeth are covered by the insurance policy (1AN)	(4)

Question	Explain one microeconomic reason why people might have unnecessary operations in the USA. Answer	Mark
9	Knowledge 1, Application 1, Analysis 2 Quantitative skills assessed: QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Knowledge 1 mark for understanding e.g.: - Asymmetric information- where one economic agent has more information than another/ where the producer has more information than the consumer Or - Information gap- where information is not available to the consumer Application 1 mark for applying to unnecessary operations e.g.: \$200 billion per year spent on unnecessary operations (1AP) Analysis up to 2 marks for linked expansion - Doctors use their superior knowledge (1AN) to recommend surgeries/operations that the patient may not need (1AN) - Consumers are not aware of whether they need the operations (1AN) as they do not have medical training (1AN) - The private health insurance model in the USA provides an incentive to complete unnecessary operations (1AN) as it is an insurance company, not the patient who will pay/ which will increase revenue for the health provider (1AN) - Consumers may be more willing to have operations (1AN) as their insurance provider is paying (1AN) NB moral hazard is a reason for people taking more risks leading to more operations and not more unnecessary operations	(4)

12 (a)	Knowledge 2 QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Up to 2 marks for understanding of 'speculation.' e.g.: • Buying and selling of commodities/assets (1) in the hope that the commodities/assets will become more valuable (1) • Taking a risk in buying a commodity/asset (1) in the expectation that it will increase in value (1) • Buying large amounts of a product (1) in the hope that it increases in price (1) • Investors/speculators purchasing items at a low price (1) to sell at a higher price/to make a profit (1) • Speculation can result in a market bubble (1) • Speculation is a type of market failure (1) • Speculators bought significant amounts of uranium accounting for 25% of annual demand (1)	(2)
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Question	With reference to Figure 1 and Extract A, analyse one demand factor and one supply factor that caused the price of uranium to more than double between January 2020 and September 2023. Illustrate your answer with a supply and demand diagram. Answer	Mark
12 (b)	Knowledge 2, Application 2, Analysis 2 Quantitative skills assessed: QS4: Construct and interpret a range of standard graphical forms QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Knowledge Up to 2 marks for the diagram showing: • Original supply, demand and equilibrium price and quantity (1) • New equilibrium quantity and increased price (1) Analysis 1 mark for demand factor from Extract A: • Governments increasing nuclear power generation / • Unstable supply of gas and rise in its price / • Governments need to reduce carbon emissions / • Speculators bought significant amounts of uranium accounting for 25% of annual demand (1) 1 mark for supply factor from Extract A: • In France production was disrupted by a lack of critical chemicals / • Worlds largest supplier/Kazakhstan had problems with shipping its uranium out of the country / • Canada had problems at two mines that reduced production by 9% (1) Application Up to 2 marks for diagram or for reference to Figure 1.: • Shift demand curve to the right (1) • Shift supply curve to the left (1) • Figure 1- price rises from approximately \$24/25 to approximately \$53/54 per pound (lb) between January 2020 and September 2023 (1)	

Question	With reference to the Hong Kong housing market, explain what is meant by a 'market bubble'.	Mark
	Answer	
8	Knowledge 2, Application 2 Knowledge 2 marks for defining 'market bubble.' • A bubble is created by speculation/expectations of further price increases (1) • To a level which is overinflated/above expected prices/increase to extreme levels/increasing constantly (1) • Price is unsustainable/value is higher than true/real value (1) • A market bubble is an example of a market failure (1) Application 2 marks for applying to the Hong Kong housing market e.g.: • In Hong Kong the house prices have increased by 10% per year between 2012 and 2018 (1) • House prices may be at risk of falling/ the housing price bubble may be at risk of bursting/ demand may fall when potential buyers can no longer borrow money/ loss of confidence about future price rises (1)	(4)

Question	With reference to Munich's housing market, explain what is meant by a 'market bubble'.	Mark
8	Answer Knowledge 2, Application 2 Quantitative skills assessed: QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Knowledge 2 marks for understanding 'market bubbles' • A bubble is created by speculation/consumers buying in the hope of selling at higher price/expectations of further price increases (1) • To a level which is overinflated/above expected prices/increase to extreme levels/increasing constantly (1) • Price is unsustainable/price is higher than true/real value (1) • A market bubble is an examples of a market failure (1) Application 2 marks for applying to Munich's housing market e.g.: • Munich has the highest risk of a housing market bubble (1) • Between 2010 and 2020 the average price of a house more than doubled (1) • House prices may be at risk of falling/the housing price bubble may be at risk of bursting/demand may fall when potential buyers can no longer borrow money/loss of confidence about future price rises (1)	(4)

Question	In the USA the price elasticity of demand for residential natural gas is estimated at -0.1. Explain one reason why the price elasticity of demand for residential natural gas is only -0.1. Answer	Mark
9	Knowledge 1, Application 1, Analysis 2 QS8: Make calculations of elasticity and interpret the result. QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Knowledge 1 mark for definition/understanding of inelastic demand e.g.: • Inelastic demand is where a change in price will result in a smaller percentage/proportionate change in quantity demand • PED value between 0 and -1 (1) Application 1 mark for applying to the stem, e.g.: • -0.1 means the PED is inelastic/demand is price inelastic/highly price inelastic/relatively price inelastic (1) Analysis Up to 2 marks for explaining one reason e.g.: • There are few substitutes for natural gas (1) so even when price changes people will continue to demand natural gas (1) • Consumers are reliant on the product/see the good as necessary (1) and would find it difficult to reduce consumption (1) • Expenditure on natural gas is a small proportion of total expenditure/income (1) so an increase in price will not discourage consumers from buying (1)	(4)

Question	Explain one reason why there might have been a housing market bubble in Australia in 2021.	Mark
	Answer	
8	Knowledge 1, Application 1 Analysis 2 Quantitative skills assessed: QS2: Calculate, use and understand percentages, percentage changes and percentage point changes. QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Knowledge 1 mark for understanding of 'market bubble': - A period where prices rise rapidly/ where prices are above their true/intrinsic value/ an adjustment may lead to rapid price reductions (1) Application 1 mark for reference to data: - Prices rising rapidly in 2021 24.5%/ Price fell rapidly 2022 -4.9% (1) Analysis Up to 2 marks for linked analysis: - Speculators (1) buying houses in the hope that their value will increase/ so that they can sell them for profit later (1) - Very low interest rates (1) causing more demand/people to purchase houses (1) - Consumer exuberance/overconfidence (1) meaning they are willing to pay prices above the value of the house (1) - Excess demand for houses (1) as demand far outstrips the supply of housing (1) - Shortage of supply of housing (1) resulting in prices being bid up substantially by many buyers (1) - Poor lending decisions by bankers/banks (1) may result in borrowers with poor credit history/no deposit adding to demand for housing (1) - Large increase in immigration (1) may lead to increased demand for housing (1)	(4)

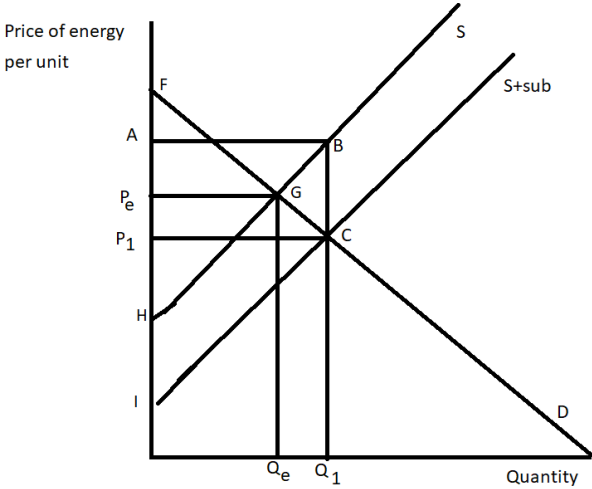
	- House builders will find that profits will fall if price fall after the bubble bursts - It may encourage illegal building which may be of a poor standard NB Negative effects of a housing market bubble may be presented as KAA and positive effects as evaluation or vice versa
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Level	Mark	Descriptor
	0	No rewardable material
Level 1	1–3	Displays isolated, superficial or imprecise knowledge and understanding of economic terms, principles, concepts, theories and models. Use of generic material or irrelevant information or inappropriate examples. Descriptive approach, which has no chains of reasoning.
Level 2	4–6	Displays elements of knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to apply knowledge and understanding to some elements of the question. Some evidence and contextual references are evident in the answer. Chains of reasoning in terms of cause and/or consequence are evident but they may not be developed fully or some stages are omitted.
Level 3	7–8	Demonstrates accurate and precise knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to link knowledge and understanding in context using relevant examples which are fully integrated to address the broad elements of the question. Analysis is clear, coherent, relevant and focused. The answer demonstrates logical and multi-stage chains of reasoning in terms of cause and/or consequence.
	Evaluation (6 marks) – indicative content - Magnitude- a significant bubble with 40% overvalued/ 10x income - The price rises may reflect true value- higher real incomes, low interest rates and immigration/ limited supply - Significant impact with higher rate of homelessness than in other developed countries	

	• No guarantee the bubble will burst • Consumers may have stored/saved funds during global health crises and had more funds available helping to boost demand Positive effects • Existing homeowners will benefit from the increase in house prices • Builders/ construction companies may benefit from securing higher prices- increasing their revenue and profit • Creates an incentive for more houses to be built - 26% increase in supply in 2021 • Government may earn more tax revenue as people buy new properties • Construction workers may benefit from increased demand for construction workers and higher wages/ more secure employment • Those that own homes that they rent may also benefit from higher rental income
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Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–2	Identification of generic evaluative comments. No supporting evidence/reference to context. No evidence of a logical chain of reasoning.
Level 2	3–4	Evidence of evaluation of alternative approaches. Some supporting evidence/reference to context. Evaluation is supported by a partially-developed chain of reasoning.
Level 3	5–6	Evaluation recognises different viewpoints and/or is critical of the evidence. Appropriate reference to evidence/context. Evaluation is supported by a logical chain of reasoning.

Section D

Question	Evaluate two possible measures that could be introduced to reduce the price that consumers pay for energy. Include at least one diagram in your answer. Indicative content
13	QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. Indicative content guidance Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make, but this does not imply that any of these must be included. Other relevant points must also be credited. Knowledge, application and analysis (12 marks) – indicative content Possible measures include: - Subsidies to energy producers - German government - Lowers costs of production - Shifts supply to the right S to $S+\text{sub}$ - Decreases price charged to consumers P_e to P_1 - Increases quantity of energy available to consumers, Q_e to Q_1 - Consumer surplus will increase from FGP_e to FCP_1 - Producer surplus will increase - Cost of subsidy to the government $ABCP_1$ 

Question Number	Between 2000 and 2019 in China the average price of a house increased from 4 000 yuan per square metre (m²) to 60 000 yuan per m². The ratio of average house prices to average incomes increased from 5.6 to 7.6, showing that houses were becoming less affordable. Evaluate the impact of market bubbles in the housing market. Indicative content
14	Indicative content guidance Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make but this does not imply that any of these must be included. Other relevant points must also be credited. Knowledge, application and analysis (12 marks) – indicative content • Define market bubble- a sustained rise in the prices of financial assets such as housing and equities which takes values well above long-run sustainable levels /where the value increases above the true value/ prices can be driven by expectations of future price increases attracting new buyers to the market/rapid price rise will eventually be followed by a crash when prices fall significantly • In China the price per m² has increased from 4 000 yuan to 60 000 yuan between 2000 to 2019/1 400% increase in price over 20 years/ increased 56 000 yuan • House price to income ratio has increased from 5.6 to 7.6 showing that house price has gone from being 5.6x to 7.6x the person's income • Low/middle income families will find it increasingly difficult to purchase a house • High house prices will see banks lending more money helping them to generate more revenue and profits • The construction sector will benefit from increased demand to build more houses/property • If the bubble bursts the construction sector would suffer significantly with unemployment likely • Rising house prices in one area that are faster than another may make it harder to move between locations • When the bubble bursts the price will return to a value that reflects the fundamental value • The housing bubble will see house prices rise creating consumer confidence and increase consumption of other goods and services • Risk of housing market bubble bursting if interest rates rise, credit become less available or consumer confidence falls

		- If the bubble bursts then the falling price of houses will see falling consumer confidence and less consumption of other goods and services- knock on effects on construction industry/lenders - House price rises increase the wealth of house/property owners and those that do not own houses and instead rent will not see the same increases in wealth NB Must make reference to the housing market to achieve Level 4 Must make a reference to bubbles bursting/corrections to achieve Level 4
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	Displays isolated, superficial or imprecise knowledge and understanding of economic terms, principles, concepts, theories and models. Use of generic material or irrelevant information or inappropriate examples. Descriptive approach, which has no chains of reasoning.
Level 2	4–6	Displays elements of knowledge and understanding of economic terms, principles, concepts, theories and models. Limited application of knowledge and understanding to economic problems in context. A narrow response or superficial, only two-stage chains of reasoning in terms of cause and/or consequence.
Level 3	7–9	Demonstrates accurate knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to apply knowledge and understanding to some elements of the question. Some evidence and contextual references are evident in the answer. Analysis is clear and coherent. Chains of reasoning in terms of cause and/or consequence are evident but they may not be developed fully or some stages are omitted.
Level 4	10–12	Demonstrates accurate and precise knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to link knowledge and understanding in context using appropriate examples which are fully integrated to address the broad elements of the question. Analysis is clear, coherent, relevant and focused. The answer demonstrates logical and multi-stage chains of reasoning in terms of cause and/or consequence.

Evaluation (8 marks) – indicative content		
• Measurement problem – difficult to measure how much of the price change reflects the fundamental value of housing and how much links to speculative investment in housing • Magnitude – this is a significant rise in price of housing so likely to have a large impact • Time frame – whilst the price may continue to rise in the long run there is likely to be a correction if the price rises too far and the price may crash • It is likely that with rapid economic growth through the period 2000 and 2019 much of the growth will reflect the economy's excellent performance • Depends on whether house ownership is significant or whether people rent instead • Affordability may not be an issue as wages will have also grown substantially • An economy will double in size in 10 years with economic growth of 7%, so likely that with high economic growth for much of this period the economy will be many times bigger and this might reflect a fundamental increase in the value of housing • The data does not make it clear whether this is a change in the nominal house price or real house price. If this is a nominal value then the price change is likely to have less significance		
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	Identification of generic evaluative comments. No supporting evidence/reference to context. No evidence of a logical chain of reasoning.
Level 2	4–6	Evidence of evaluation of alternative approaches. Some supporting evidence/reference to context. Evaluation is supported by a partially-developed chain of reasoning.
Level 3	7–8	Evaluation recognises different viewpoints and/or is critical of the evidence, leading to an informed judgement. Appropriate reference to evidence/context. Evaluation is supported by a logical chain of reasoning.