GuideMyGrades

YOUR GOALS. OUR EXPERTISE.

EDEXCEL INTERNATIONAL A LEVEL ECONOMICS: QUESTIONS BY TOPIC

Price determination (1.3.4)

International A Level Economics · Unit 1: Markets in action

81 questions · 636 marks · Mark schemes included

Past papers January 2019 - June 2025 · 4 specification sub-topics

guidemygrades.com
@Guidemygrades
@Guidemygrades
@Guidemygrades
info@guidemygrades.com
Piccadilly Business Centre, Unit C, Aldow Enterprise Park
Blackett Street, Manchester, M12 6AE

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.

	QUESTION	SOURCE	MARKS	PAGE
1.3.4.1	**DETERMINATION OF MARKET EQUILIBRIUM**		28 Qs · 188 marks	**4**
1.	**Q12(a)**	IAL Unit 1 October 2020	2	**5**
2.	**Q7(a)**	IAL Unit 3 October 2021	2	**9**
3.	**Q10**	IAL Unit 1 January 2019	4	**13**
4.	**Q7**	IAL Unit 1 June 2023	4	**14**
5.	**Q12(c)**	IAL Unit 1 January 2019	6	**15**
6.	**Q12(c)**	IAL Unit 1 June 2019	6	**20**
7.	**Q12(c)**	IAL Unit 1 October 2019	6	**25**
8.	**Q12(c)**	IAL Unit 1 January 2020	6	**30**
9.	**Q12(c)**	IAL Unit 1 October 2020	6	**35**
10.	**Q12(c)**	IAL Unit 1 January 2021	6	**40**
11.	**Q12(c)**	IAL Unit 1 June 2021	6	**45**
12.	**Q12(b)**	IAL Unit 1 October 2021	6	**50**
13.	**Q12(c)**	IAL Unit 1 January 2022	6	**55**
14.	**Q12(c)**	IAL Unit 1 June 2022	6	**60**
15.	**Q12(c)**	IAL Unit 1 October 2022	6	**65**
16.	**Q12(b)**	IAL Unit 1 January 2023	6	**70**
17.	**Q12(c)**	IAL Unit 1 June 2023	6	**75**
18.	**Q12(c)**	IAL Unit 1 October 2023	6	**80**
19.	**Q7(b)**	IAL Unit 3 October 2023	6	**85**
20.	**Q12(c)**	IAL Unit 1 January 2024	6	**90**
21.	**Q12(b)**	IAL Unit 1 June 2024	6	**95**
22.	**Q12(b)**	IAL Unit 1 October 2024	6	**100**
23.	**Q12(b)**	IAL Unit 1 January 2025	6	**105**
24.	**Q12(b)**	IAL Unit 1 June 2025	6	**110**
25.	**Q12(d)**	IAL Unit 1 June 2022	8	**115**
26.	**Q12(d)**	IAL Unit 1 October 2022	8	**120**
27.	**Q14**	IAL Unit 1 January 2023	20	**125**
28.	**Q13**	IAL Unit 1 January 2024	20	**126**
1.3.4.2	**CONSUMER AND PRODUCER SURPLUS**		15 Qs · 71 marks	**127**
29.	**Q4**	IAL Unit 1 October 2019	1	**128**
30.	**Q5**	IAL Unit 1 October 2020	1	**129**
31.	**Q4**	IAL Unit 1 June 2023	1	**130**
32.	**Q11**	IAL Unit 1 January 2019	4	**131**
33.	**Q11**	IAL Unit 1 January 2020	4	**132**

	QUESTION	SOURCE	MARKS	PAGE
34.	**Q11**	IAL Unit 1 January 2021	4	**133**
35.	**Q11**	IAL Unit 1 June 2021	4	**134**
36.	**Q11**	IAL Unit 1 October 2021	4	**135**
37.	**Q11**	IAL Unit 1 October 2022	4	**136**
38.	**Q11**	IAL Unit 1 June 2023	4	**137**
39.	**Q11**	IAL Unit 1 January 2024	4	**138**
40.	**Q11**	IAL Unit 1 June 2024	4	**139**
41.	**Q11**	IAL Unit 1 January 2025	4	**140**
42.	**Q12(d)**	IAL Unit 1 October 2021	8	**141**
43.	**Q13**	IAL Unit 1 June 2025	20	**146**
1.3.4.3	**FUNCTIONS OF THE PRICE MECHANISM**		3 Qs · 6 marks	**147**
44.	**Q2**	IAL Unit 1 January 2019	1	**148**
45.	**Q1**	IAL Unit 1 January 2022	1	**149**
46.	**Q9**	IAL Unit 1 January 2025	4	**150**
1.3.4.4	**INDIRECT TAXES AND SUBSIDIES**		35 Qs · 371 marks	**151**
47.	**Q4**	IAL Unit 1 January 2019	1	**152**
48.	**Q6**	IAL Unit 1 October 2020	1	**153**
49.	**Q6**	IAL Unit 1 October 2022	1	**154**
50.	**Q12(a)**	IAL Unit 1 January 2022	2	**155**
51.	**Q7**	IAL Unit 1 January 2019	4	**159**
52.	**Q7**	IAL Unit 1 June 2019	4	**160**
53.	**Q7**	IAL Unit 1 June 2021	4	**161**
54.	**Q7**	IAL Unit 1 October 2021	4	**162**
55.	**Q11**	IAL Unit 1 June 2022	4	**163**
56.	**Q11**	IAL Unit 1 October 2023	4	**164**
57.	**Q9**	IAL Unit 1 January 2024	4	**165**
58.	**Q7**	IAL Unit 1 January 2025	4	**166**
59.	**Q12(d)**	IAL Unit 1 January 2020	8	**167**
60.	**Q12(d)**	IAL Unit 1 January 2021	8	**172**
61.	**Q12(d)**	IAL Unit 1 October 2023	8	**177**
62.	**Q12(d)**	IAL Unit 1 October 2024	8	**182**
63.	**Q12(d)**	IAL Unit 1 January 2025	8	**187**
64.	**Q12(e)**	IAL Unit 1 June 2019	14	**192**
65.	**Q12(e)**	IAL Unit 1 October 2019	14	**198**
66.	**Q12(e)**	IAL Unit 1 January 2021	14	**204**
67.	**Q12(e)**	IAL Unit 1 June 2021	14	**210**
68.	**Q12(e)**	IAL Unit 1 January 2022	14	**216**
69.	**Q12(e)**	IAL Unit 1 June 2022	14	**222**
70.	**Q12(e)**	IAL Unit 1 October 2022	14	**228**
71.	**Q12(e)**	IAL Unit 1 January 2024	14	**234**
72.	**Q12(e)**	IAL Unit 1 June 2024	14	**240**

	QUESTION	SOURCE	MARKS	PAGE
73.	**Q12(e)**	IAL Unit 1 October 2024	14	**246**
74.	**Q12(e)**	IAL Unit 1 June 2025	14	**252**
75.	**Q13**	IAL Unit 1 October 2019	20	**258**
76.	**Q13**	IAL Unit 1 October 2020	20	**259**
77.	**Q13**	IAL Unit 1 October 2021	20	**260**
78.	**Q13**	IAL Unit 1 January 2023	20	**261**
79.	**Q14**	IAL Unit 1 January 2024	20	**262**
80.	**Q14**	IAL Unit 1 June 2024	20	**263**
81.	**Q14**	IAL Unit 1 June 2025	20	**264**

QUESTIONS

81 questions · 636 marks · 4 sub-topics

SUB-TOPIC 1.3.4.1

DETERMINATION OF MARKET EQUILIBRIUM

Sub-topic 1.3.4.1 · 28 questions · 188 marks · lowest tariff first

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.

Illustrate your answer with a supply and demand diagram.

(6)

(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.

Illustrate your answer with an appropriate diagram.

(14)

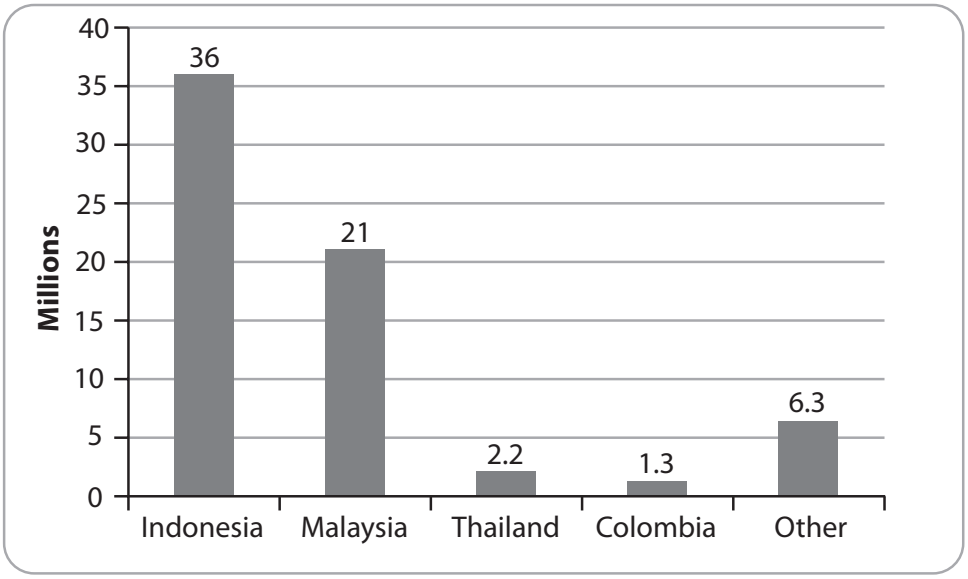
Sources for use with Section C.

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.

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.

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.

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 100000 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.

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)

SECTION B

Study Figures 1 and 2 and Extracts A and B in the Source Booklet before answering Question 7.

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

7 (a) With reference to Figure 1, calculate the percentage change in the average world price of coffee beans from 1 July 2017 to 1 May 2019. You are advised to show your working.

(2)

(b) With reference to Extract A (line 12), explain what is meant by 'short-run shutdown point.'

(4)

(c) With reference to Figure 2 and Extract A, analyse **two** possible reasons for the increase in supply of coffee beans between 2015 and 2019.

(6)

(d) With reference to Extract B, examine **two** barriers to entry into the US coffee shop market.

(8)

(e) With reference to the information provided, discuss the reasons for the increase in Starbucks' profits in 2019.

For **one** of these reasons, illustrate your answer with an appropriate cost and revenue diagram.

(14)

Sources for use with Section B.

The global coffee market

Figure 1 Average world price of coffee beans, $ per kg, July 2017–May 2019

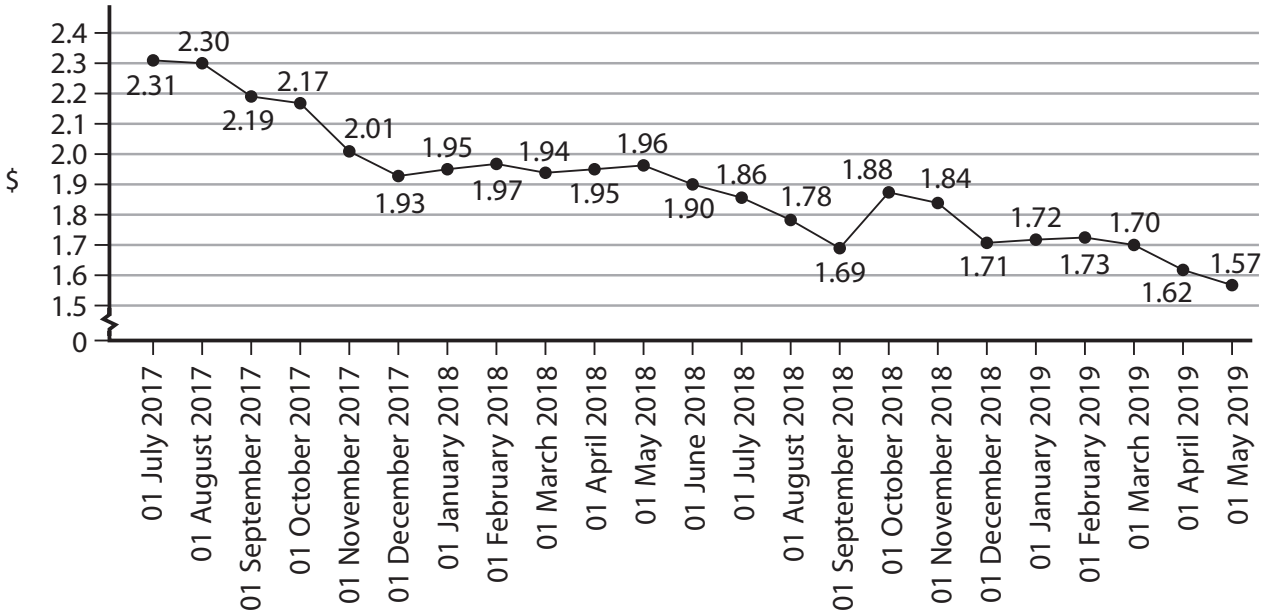
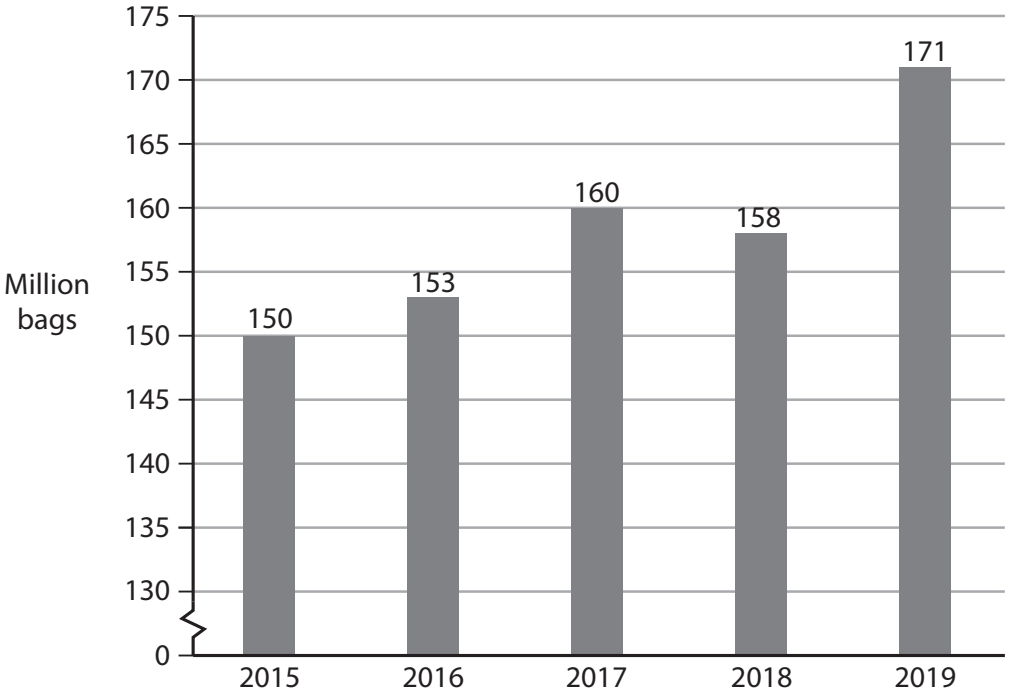


Figure 2 World coffee production, million bags, 2015–2019



Extract A Global coffee bean production

In 2019 the supply of coffee beans was greater than the demand, resulting in a global coffee bean surplus of over 4 million bags. Coffee bean supply increased by 8% whereas demand increased by only 2%. Consequently, by May 2019, the global price of coffee beans fell to its lowest level in over 10 years.

The increase in global production was caused by developments in farming equipment and improved methods of production. Also, favourable weather conditions in major coffee-producing countries, such as Brazil, contributed to the global increase in production.

The fall in the global price of coffee beans caused serious problems for small coffee growers in Central America and Africa. These farmers made large losses and many reached their short-run shutdown point. Some farmers have switched to the production of lower-risk crops.

Extract B Coffee shop chain growth

Coffee is the second most popular drink in the world and the demand for it is increasing steadily. Globally two billion cups of coffee are consumed every day. The revenue of coffee shop chains globally is projected to reach $237.6 billion by 2025.

Starbucks is the largest coffee shop chain worldwide. In 2019 Starbucks' revenue increased by 7.24%. Its profits also increased by 7.11% to $17.98 billion. The company had over 27 000 stores worldwide, with many new shops opening in China.

In the USA it is difficult for a new firm to enter the coffee shop market because there are already a number of well-known firms. These include Starbucks, Tim Hortons, Dunkin' Donuts, Dutch Bros Coffee and Peet's Coffee. The firms compete using special offers, large advertising budgets and loyalty schemes. More recently, these firms have been using higher quality coffee beans and cold coffee drinks to attract younger coffee drinkers. They have also been investing heavily in developing mobile phone apps and online ordering systems to increase brand loyalty and market shares. Industry leaders believe that social media advertising is the most effective form of marketing for coffee shops.

However, there are still a large number of successful, small independent coffee shops in the USA. These are often very different to the larger firms, offering alternative drinks and food options. They are also located in out-of-town-centres and aim to attract a different type of consumer.

7 (a) With reference to Figure 1, calculate the percentage change in the average world price of coffee beans from 1 July 2017 to 1 May 2019.

You are advised to show your working.

(2)

10 The table shows the quantity of bottled water supplied and the quantity of bottled water demanded at different prices. An advertising campaign results in an increase in demand of 100 bottles of water at each price.

Price per bottle (yuan)	Original quantity demanded per week	Original quantity supplied per week	
¥10	700	200	
¥11	600	300	
¥12	500	400	
¥13	400	500	
¥14	300	600	

Using the data in the table, calculate the equilibrium price for bottled water after the advertising campaign. Show your workings. You may wish to use the last column in your calculation.

(Total for Question 10 = 4 marks)

SECTION B

Answer ALL questions in this section in the space provided.

7 In 2021 Spain produced 1.4 million tonnes of olives, accounting for 50% of world production. In 2022 a prolonged heatwave in Spain resulted in its olive production falling to 1.0 million tonnes.

Draw a diagram to illustrate the likely impact of this change on the world market for olives.

(4)

(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.

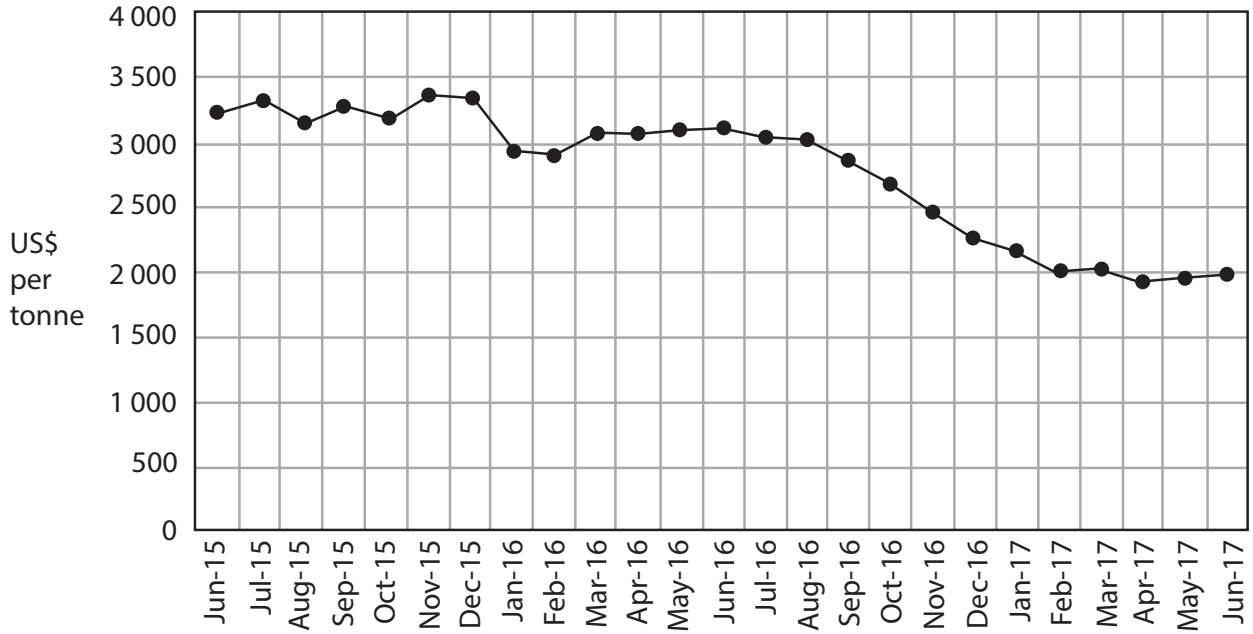
Illustrate your answer with an appropriate diagram.

(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.

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.

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.

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.

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.

(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)

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)

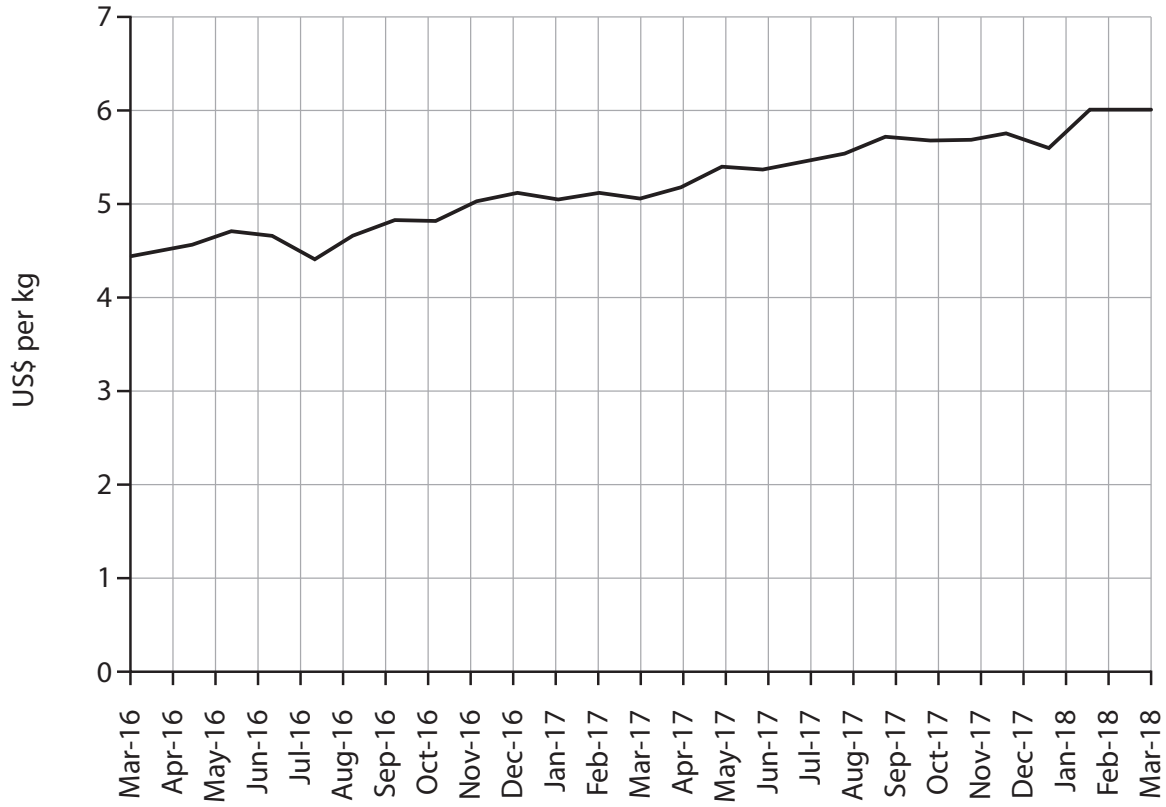
Sources for use with Section C.

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.

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.

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.

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.

(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)

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).

Illustrate your answer with a supply and demand diagram.

(6)

(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.

Illustrate your answer with an appropriate diagram.

(14)

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.

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
- 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.

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.

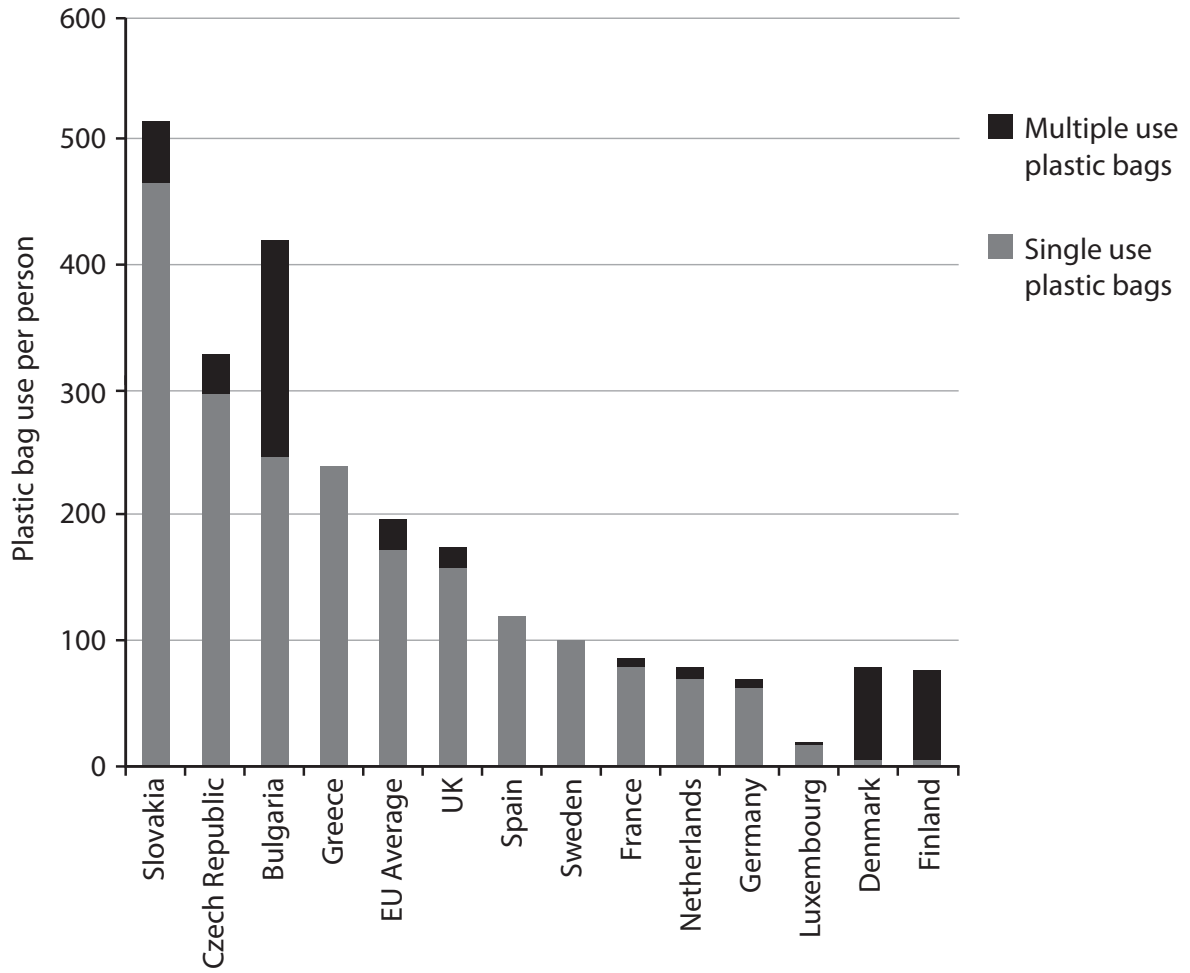
In 1994 Denmark introduced a plastic bag tax of €0.27 per bag which supermarkets have passed onto consumers. However, clothing shops do not charge consumers for the bags and pay the tax themselves. In the year before the tax was introduced 800 million bags were used and in the year after the tax this 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%.

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.

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



(c) Analyse **one** reason why 'the price of plastic waste material fell by more than 40%.' (Extract A, line 2).

Illustrate your answer with a supply and demand diagram.

(6)

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.

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.

Illustrate your answer with an appropriate diagram.

(14)

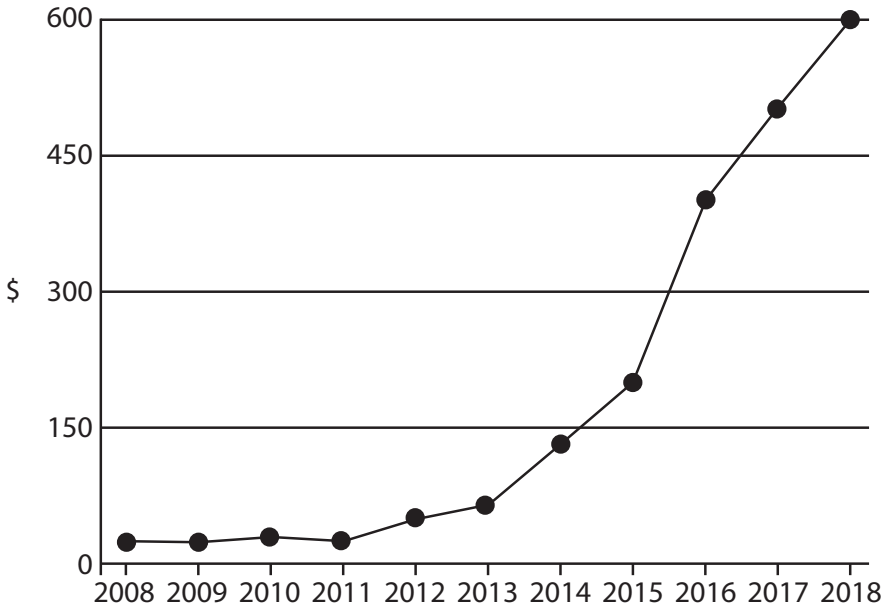
Sources for use with Section C.

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.

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.

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.

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.

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%.

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.

(c) Analyse why the price of vanilla increased significantly between 2014 and 2018. Refer to Figure 2 and Extract A in your answer.

Illustrate your answer with a supply and demand diagram.

(6)

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.

Illustrate your answer with a supply and demand diagram.

(6)

(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.

Illustrate your answer with an appropriate diagram.

(14)

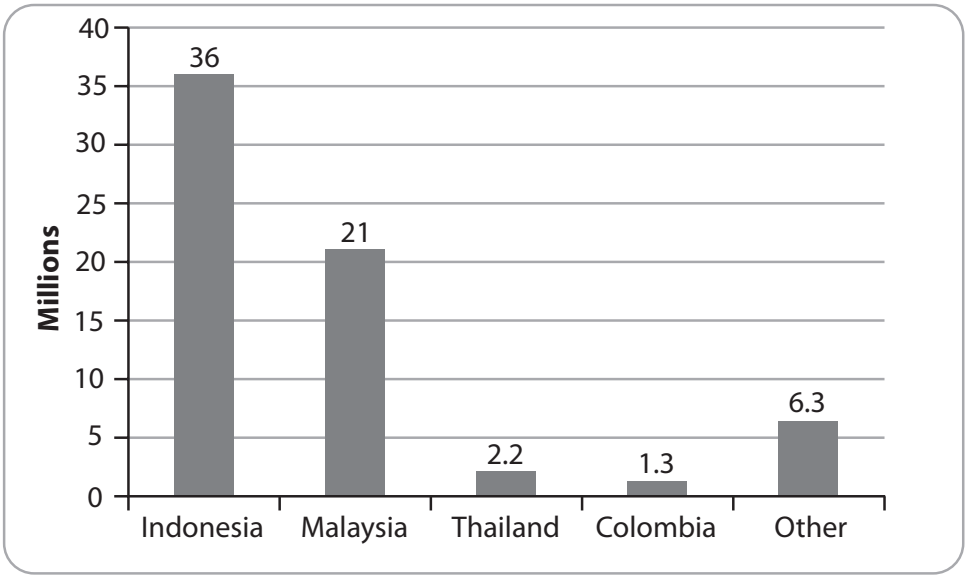
Sources for use with Section C.

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.

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.

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.

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 100000 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.

(c) With reference to the information provided, analyse **two** reasons why the price of palm oil decreased in 2018.

Illustrate your answer with a supply and demand diagram.

(6)

SECTION C

Study Figure 1 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 'renewable resource' (Extract B, line 19).

(2)

(b) Explain what is meant by the term 'rational decision'. Refer to Extract B in your answer.

(4)

(c) Analyse why the global price of oil fell in the first quarter of 2020. Refer to Figure 1 and Extract A in your answer.

Illustrate your answer with a supply and demand diagram.

(6)

(d) With reference to Extract A, examine **two** likely effects of the high level of indirect taxation on diesel and petrol in India.

(8)

(e) With reference to Extract B, discuss the likely microeconomic effects of the subsidy paid to the manufacturers of electric cars.

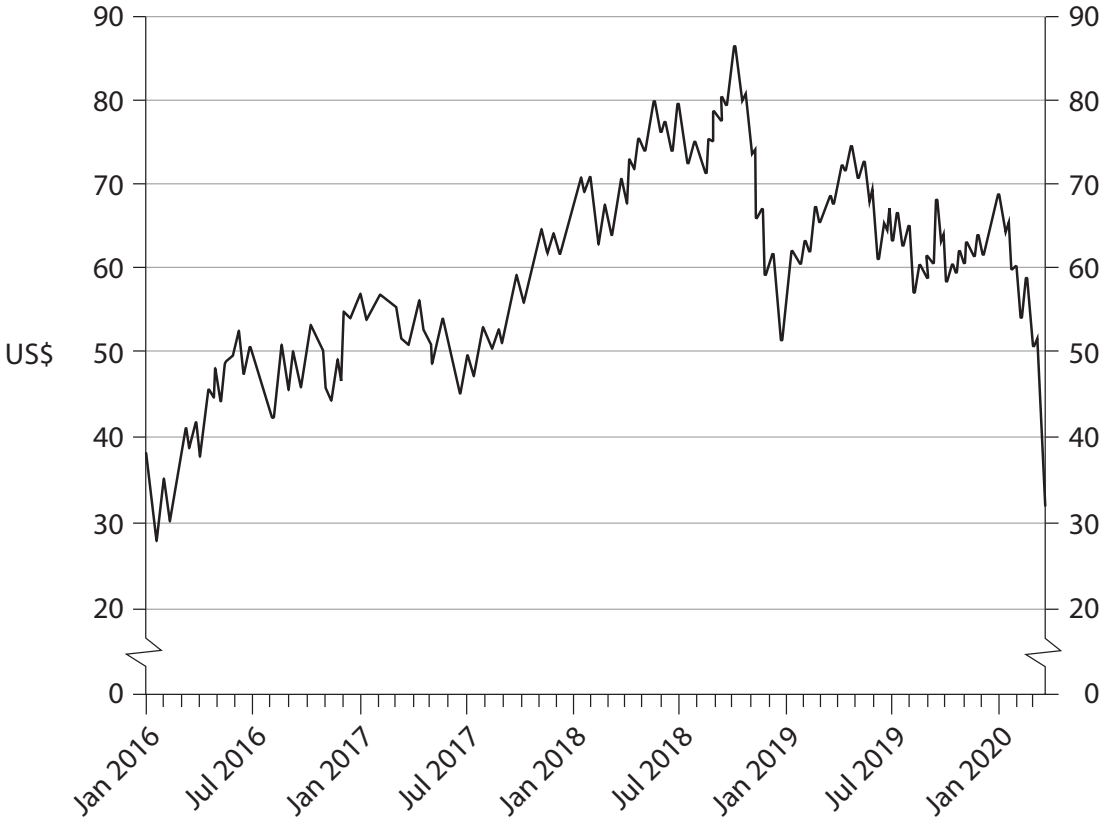
Illustrate your answer with an appropriate diagram.

(14)

Sources for use with Section C.

The markets for oil and electric cars

Figure 1 Global price of oil per barrel, US$ 2016–2020



Extract A Oil price fall

The global price of oil fell in the first quarter of 2020 after governments restricted the movement of people. Many offices and factories closed, causing a significant reduction in production. With less transport and energy needed, the demand for oil decreased. Oil producing countries, led by Saudi Arabia, planned to reduce production in order to increase the price of oil. However, Russia increased its production, so Saudi Arabia responded by increasing its production.

In India the significant fall in the global oil price only resulted in a 7% decrease in the price of petrol and diesel. One reason for this is the high level of indirect taxation on petrol and diesel in the country. In India almost half the price of petrol and diesel is in the form of indirect taxation.

Extract B Canadian electric car subsidy

Road transportation accounts for 20% of Canada's carbon emissions. The Canadian Government aims to remove all petrol and diesel cars by 2040. However, in 2019 only 2% of cars were electric.

In 2019 the government introduced a $5 000 subsidy to encourage electric car sales. This subsidy is paid to the manufacturers of electric cars. This will apply to electric cars with a price below $45 000. There are just nine electric car models available for under $45 000.

Indirect taxes are added to the price of a petrol Volkswagen (VW) Golf. With the subsidy it would be cheaper to buy the electric VW Golf. The rational decision would be to purchase the cheaper electric VW Golf.

A problem is that there are only 5 800 charging points that are accessible to Canada's 37 million population. By comparison, in Norway there are 176 000 charging points for the population of just 5 million. The Canadian Government is planning to spend $130 million to increase the number of charging stations.

Electric cars have zero carbon emissions when being driven. However, to produce an electric car battery requires twice as much energy compared with the production of a petrol or diesel car battery. In addition, the electricity used to power the electric vehicle creates emissions if the electricity is generated using fossil fuels like coal. In Canada 60% of electricity is generated using hydroelectricity, a renewable resource, whereas in Norway it is 96%.

(c) Analyse why the global price of oil fell in the first quarter of 2020. Refer to Figure 1 and Extract A in your answer.

Illustrate your answer with a supply and demand diagram.

(6)

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.

Illustrate your answer with a supply and demand diagram.

(6)

(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.

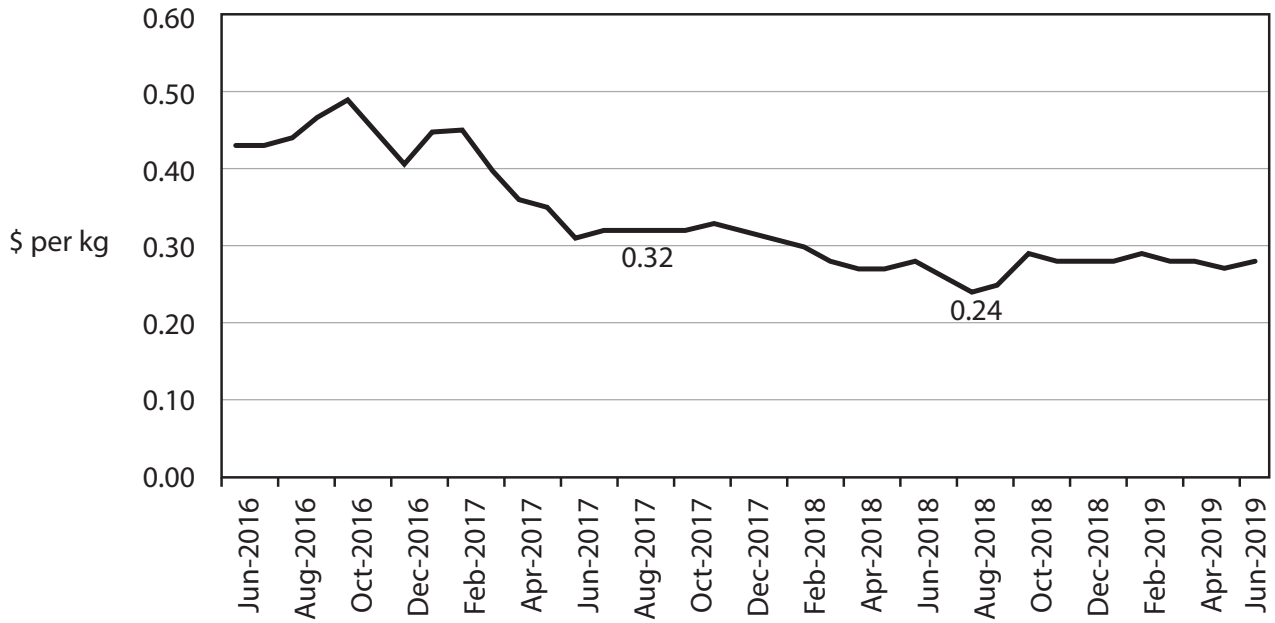
Illustrate your answer with an appropriate diagram.

(14)

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.

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.

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. 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.

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.

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.

(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.

Illustrate your answer with a supply and demand diagram.

(6)

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)

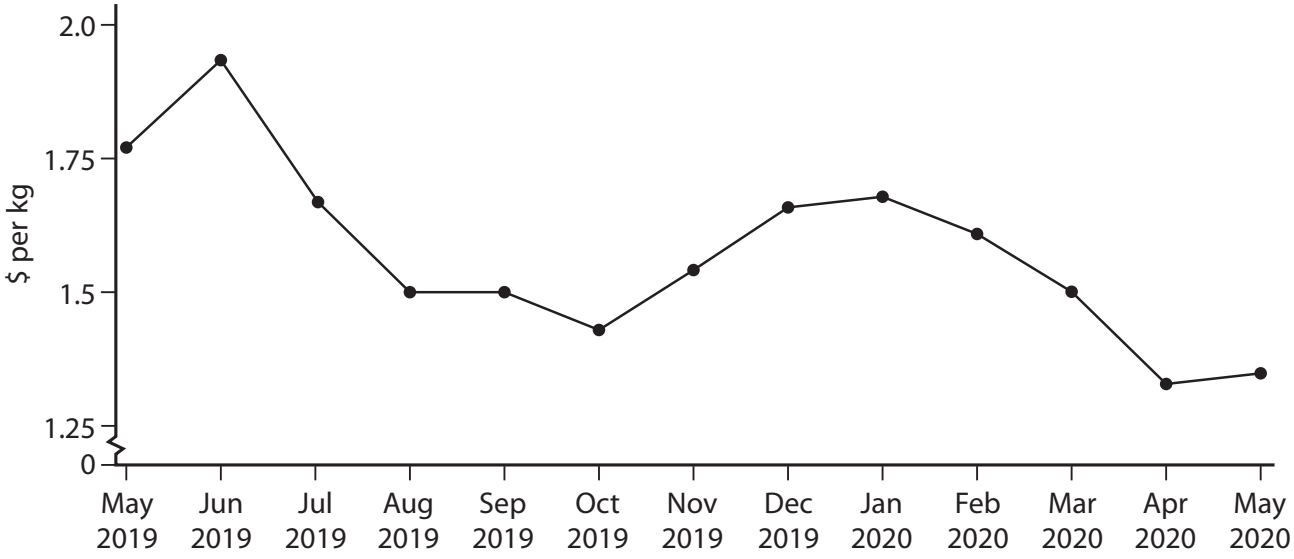
(e) With reference to Extract B, discuss the external costs associated with tyre production and consumption.

(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.

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.

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.

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.

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.

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)

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.

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
- 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.

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

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.

(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)

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.

Illustrate your answer with a supply and demand diagram.

(6)

(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).

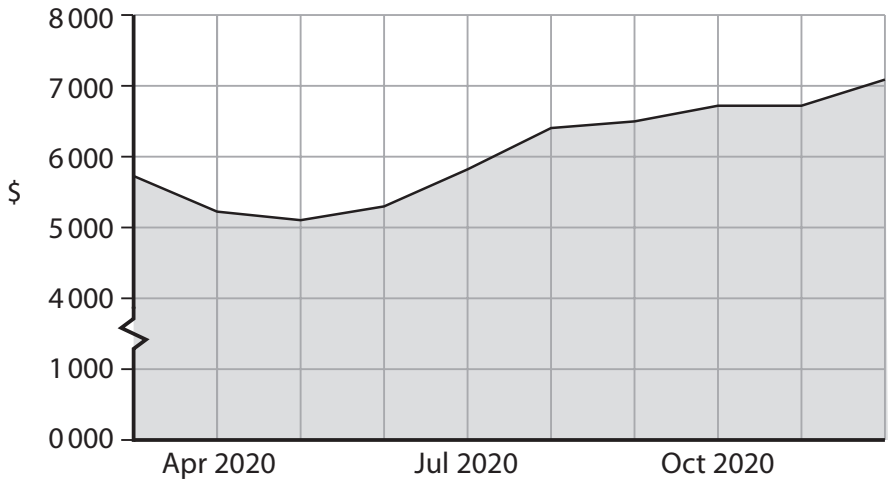
Illustrate your answer with an appropriate diagram.

(14)

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

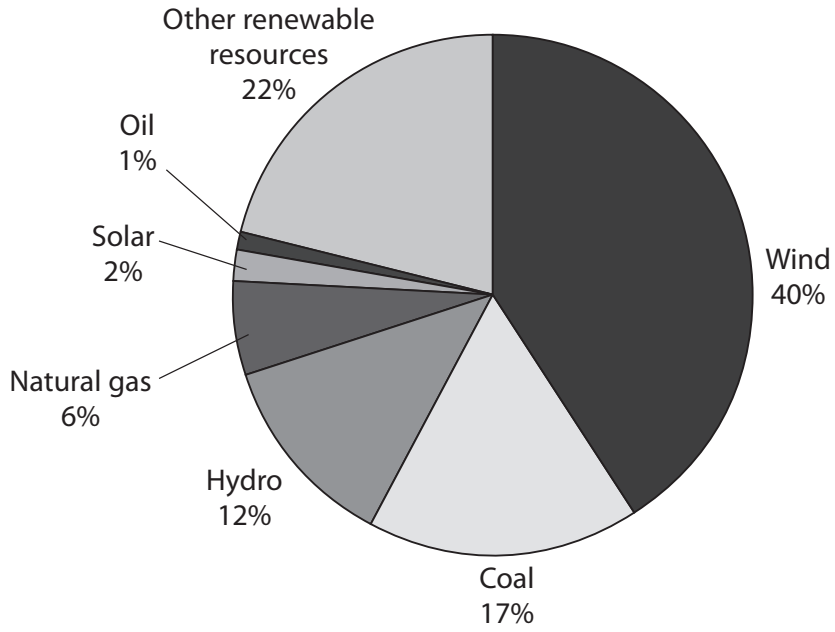


Extract A Copper prices rise

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.

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.

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.

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.

(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.

Illustrate your answer with a supply and demand diagram.

(6)

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.

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.

Extract B Excess demand for semiconductors affects car manufacturers

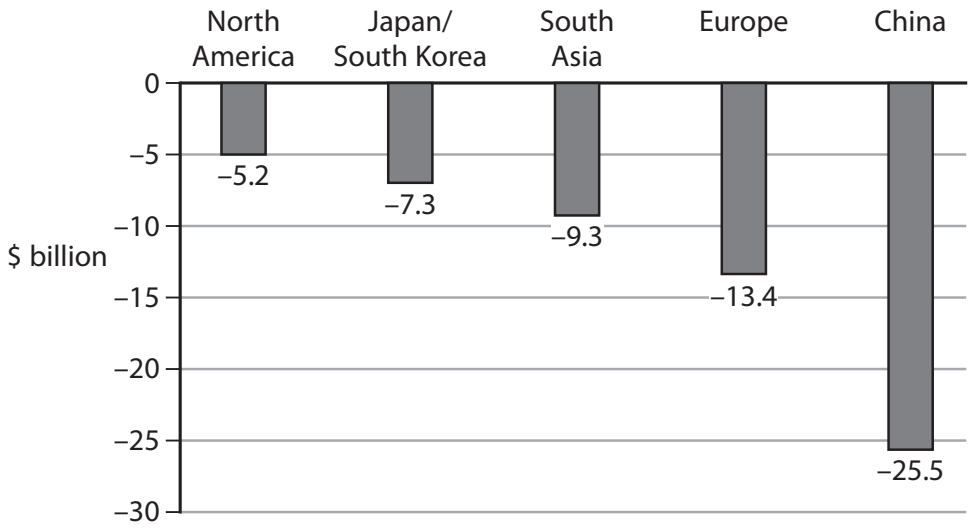
In 2021 the global demand for cars increased following very low sales in 2020. This increased the demand for semiconductors. However, the manufacturers of semiconductors were unable to supply the amount demanded, resulting in excess demand. As a result, many car manufacturers reduced production. For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

- 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.

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.

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.

(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)

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)

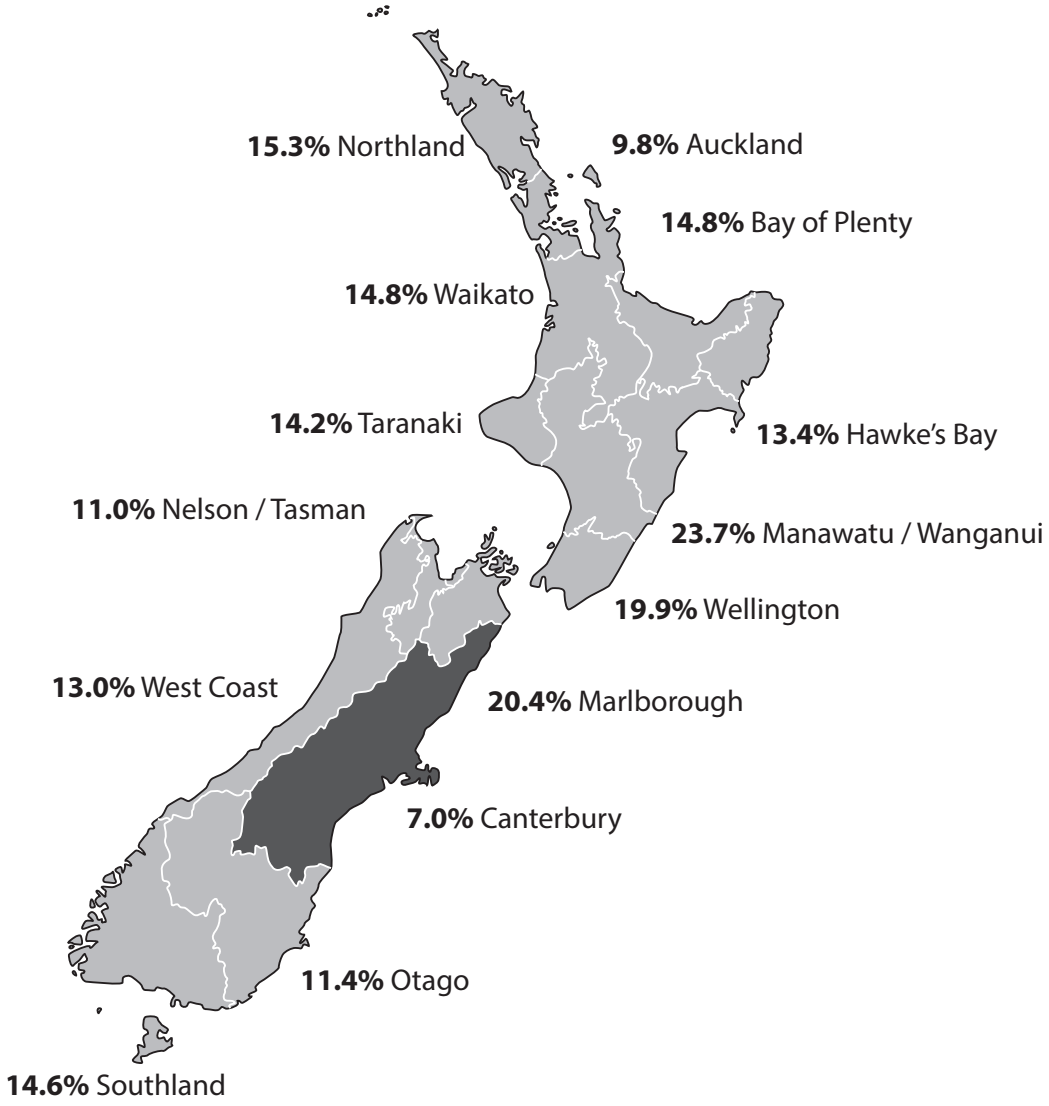
(e) With reference to Figure 1, Extract A and Extract B, discuss the likely microeconomic effects of a housing market bubble in New Zealand.

(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.

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.

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.

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.

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%.

Extract C New Zealand's national parks

New Zealand has 13 national parks covering 30 000 km^2 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.

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.

(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)

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

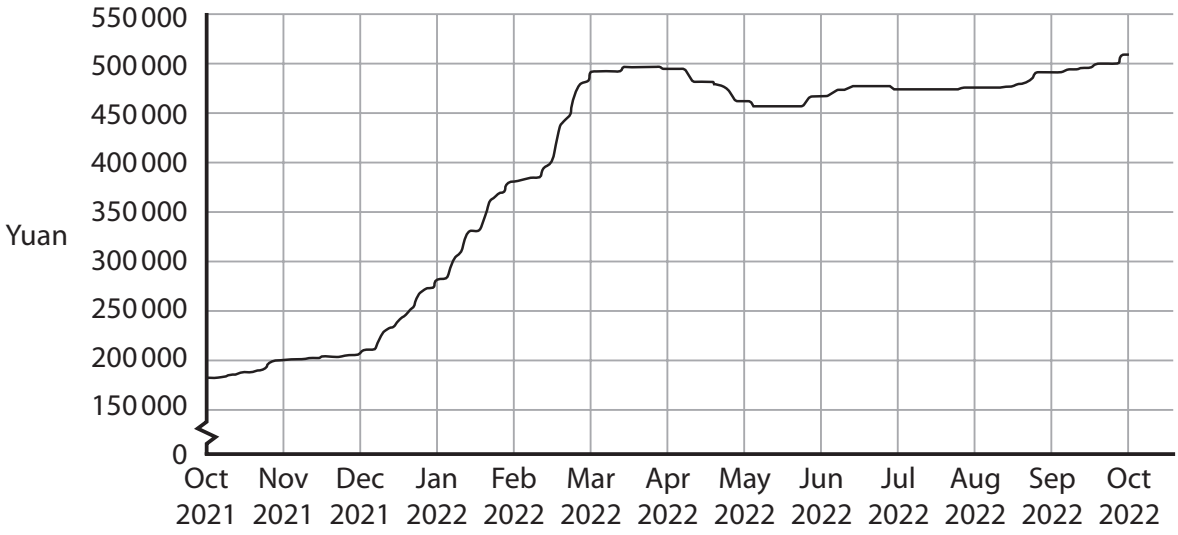
Extract A Apple's renewable commitment

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.

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.

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 CO_2 emissions which is 0.5% of global carbon emissions. These emissions are produced in the manufacturing, transportation, usage and recycling of smartphones.

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.

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.

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

(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)

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.

Illustrate your answer with a supply and demand diagram.

(6)

(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.

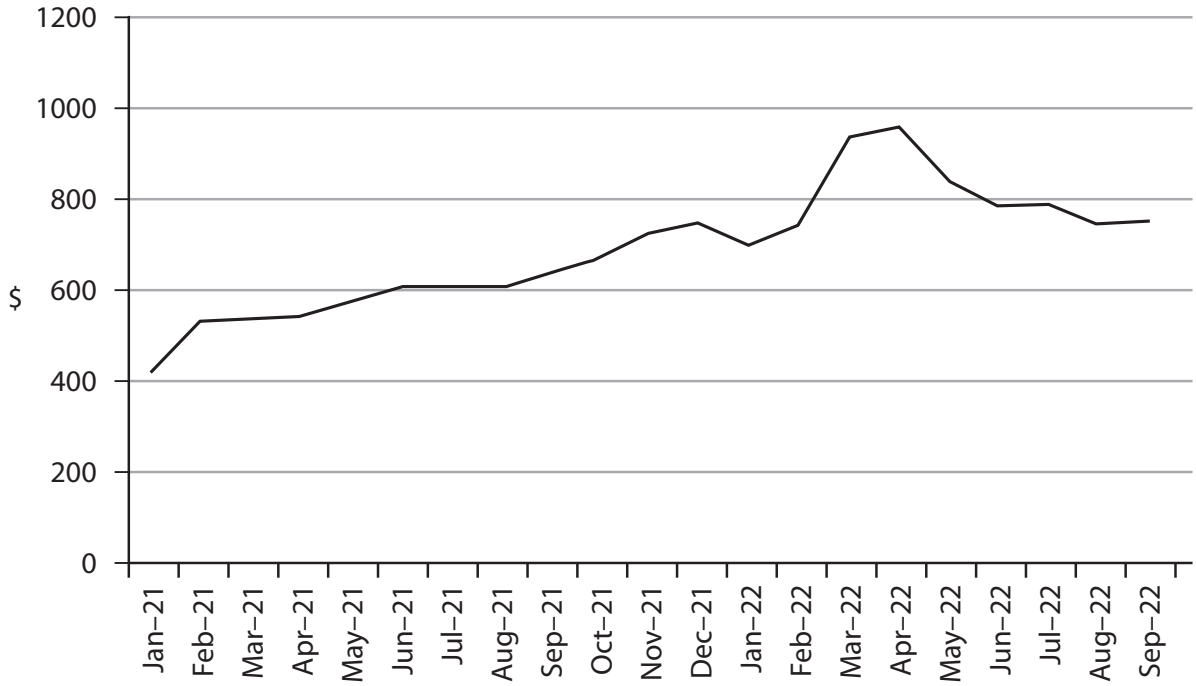
Illustrate your answer with an appropriate diagram.

(14)

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.

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.

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. 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. 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. 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 farming methods to achieve this target.

(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.

Illustrate your answer with a supply and demand diagram.

(6)

SECTION B

Study Figures 1 and 2 and Extracts A and B in the Source Booklet before answering Question 7.

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

7 (a) With reference to Figure 2, calculate the percentage change in the price of the Model 3 Rear Wheel Drive vehicle between January and October 2022.

(2)

(b) With reference to Extract A, analyse **two** reasons why sales of electric vehicles in China increased.

Illustrate your answer with a supply and demand diagram.

(6)

(c) With reference to Figure 1 and Extract B, explain the market structure that best describes the electric vehicle market in China.

(4)

(d) With reference to the first two paragraphs of Extract B, examine the impact of Tesla producing its electric vehicles in China on its costs and profits.

Illustrate your answer with a costs and revenues diagram.

(8)

(e) With reference to the information provided and your own knowledge, discuss the impact of Tesla reducing its prices on the behaviour of other electric vehicle manufacturers.

(14)

Sources for use with Section B

The electric vehicle market in China

Figure 1 Market share for electric vehicle passenger sales, based on sales revenue, 2021

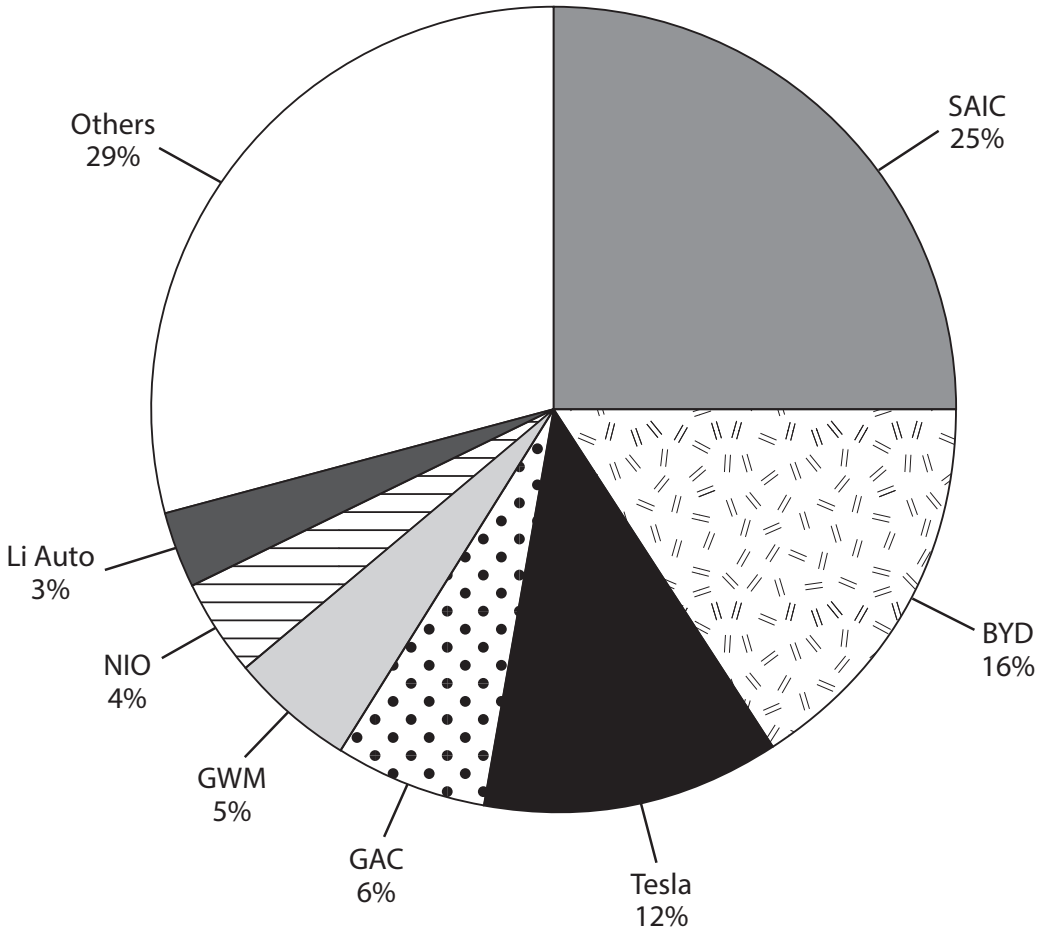


Figure 2 Tesla electric vehicle prices, 2022 (Yuan, 000s)

Model of vehicle	January 2022	October 2022
Model 3 Rear Wheel Drive	280	266
Model 3 Performance	368	350
Model Y Rear Wheel Drive	317	289
Model Y Performance	418	398

Extract A Changes in the Chinese electric vehicle market

In 2020 the Chinese Government adopted many new measures to reduce CO_2 emissions, in order to meet its climate change goals by 2030. For example, the Government has increased the number of charging points and raised the tax on non-electric vehicles. The global increase in the price of fuel has also led to an increase in demand for electric vehicles. Between 2021 and 2022 the sales of electric vehicles in China increased by 83% to 5.92 million.

Extract B Tesla in China

Tesla, a US-owned vehicle company, has attempted to increase its sales in China to take advantage of the increasing demand for electric vehicles. In 2019 the company opened a factory in Shanghai. It became the first fully foreign-owned vehicle manufacturer in the country. By producing vehicles in China, Tesla was able to take advantage of government incentives, such as subsidies, aimed at promoting the domestic electric vehicle industry, as well as benefiting from low-cost labour. This new factory was expected to increase Tesla's competitiveness in the Chinese market by making its vehicles more affordable for consumers. China has become a key manufacturing centre for Tesla. Its factory in Shanghai produced over 710 000 vehicles in 2022. This represented 52% of the company's worldwide output.

However, production has been difficult in China. Tesla faced supply chain disruptions as a result of the global health crisis of 2020 to 2022. This resulted in a reduction in output and an increase in its costs of production. Tesla also had to pay taxes on imported components and finished vehicles.

In October 2022 Tesla reduced the price of several of its electric vehicles. The two main reasons for these price reductions were:

- a fall in its production costs arising from government subsidies to electric car manufacturers
- improved efficiency from manufacturing in Shanghai.

The lower prices of Tesla's electric vehicles had a significant impact on its competitors. Domestic and other international manufacturers responded by reducing their prices for electric vehicles as they competed for market share.

7 (a) With reference to Figure 2, calculate the percentage change in the price of the Model 3 Rear Wheel Drive vehicle between January and October 2022.

(2)

(b) With reference to Extract A, analyse **two** reasons why sales of electric vehicles in China increased.

Illustrate your answer with a supply and demand diagram.

(6)

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

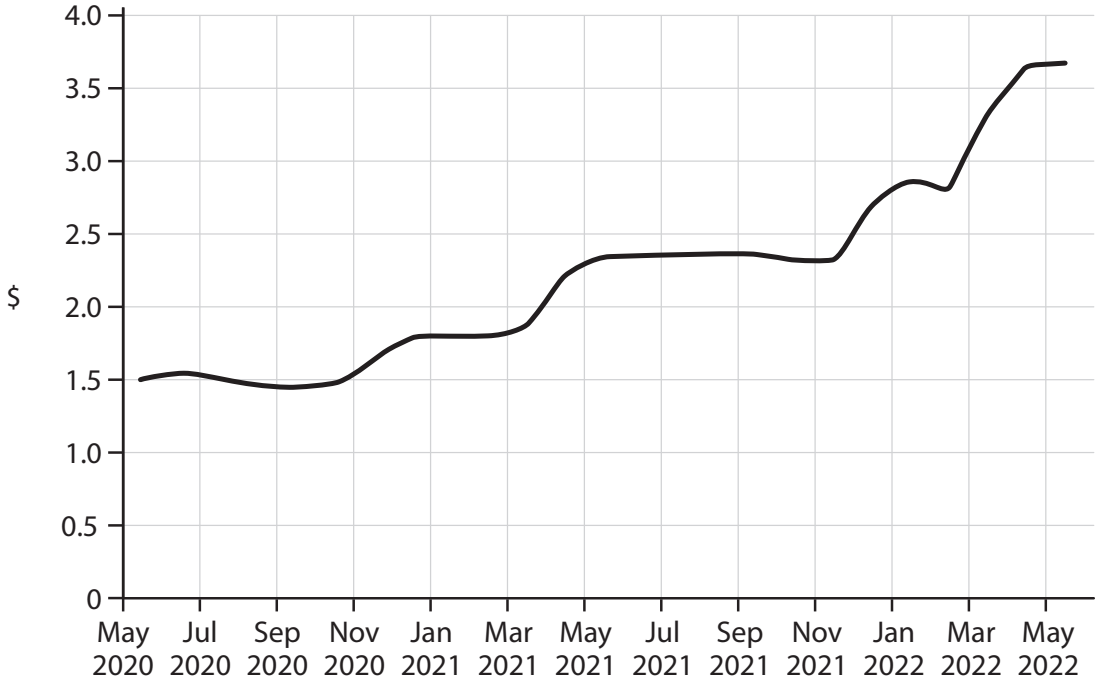


Figure 2

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.

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.

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.

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.

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

- 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
- 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.

(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)

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.

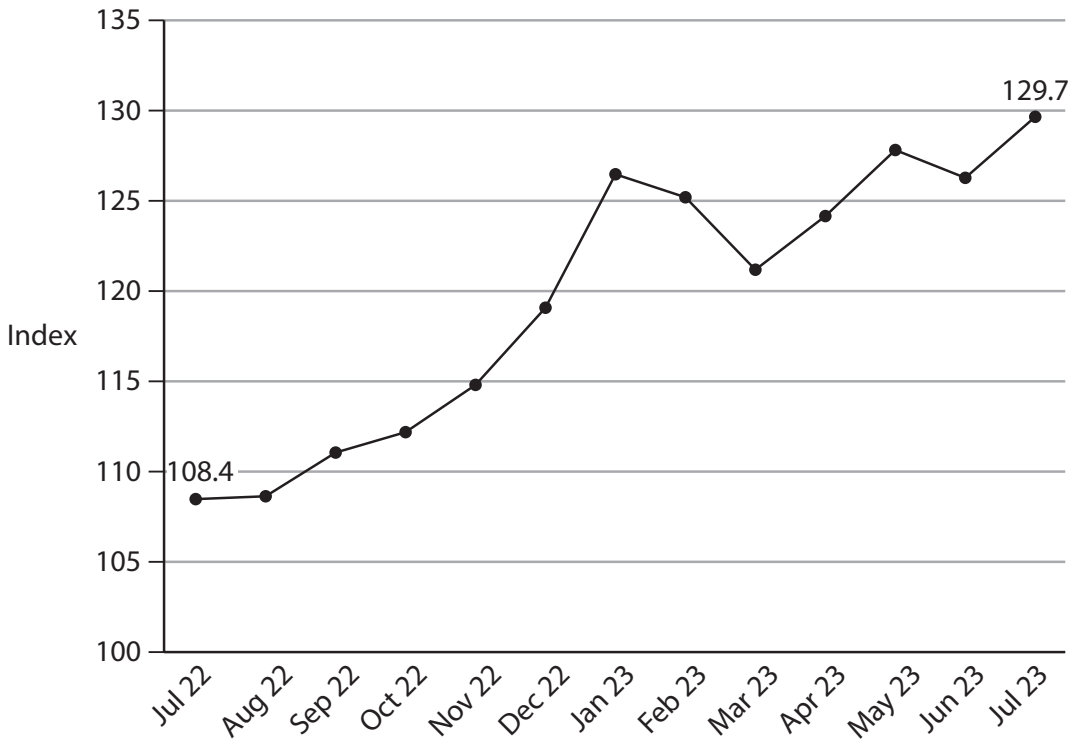
Illustrate your answer with an appropriate diagram.

(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.

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.

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.

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.

(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)

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.

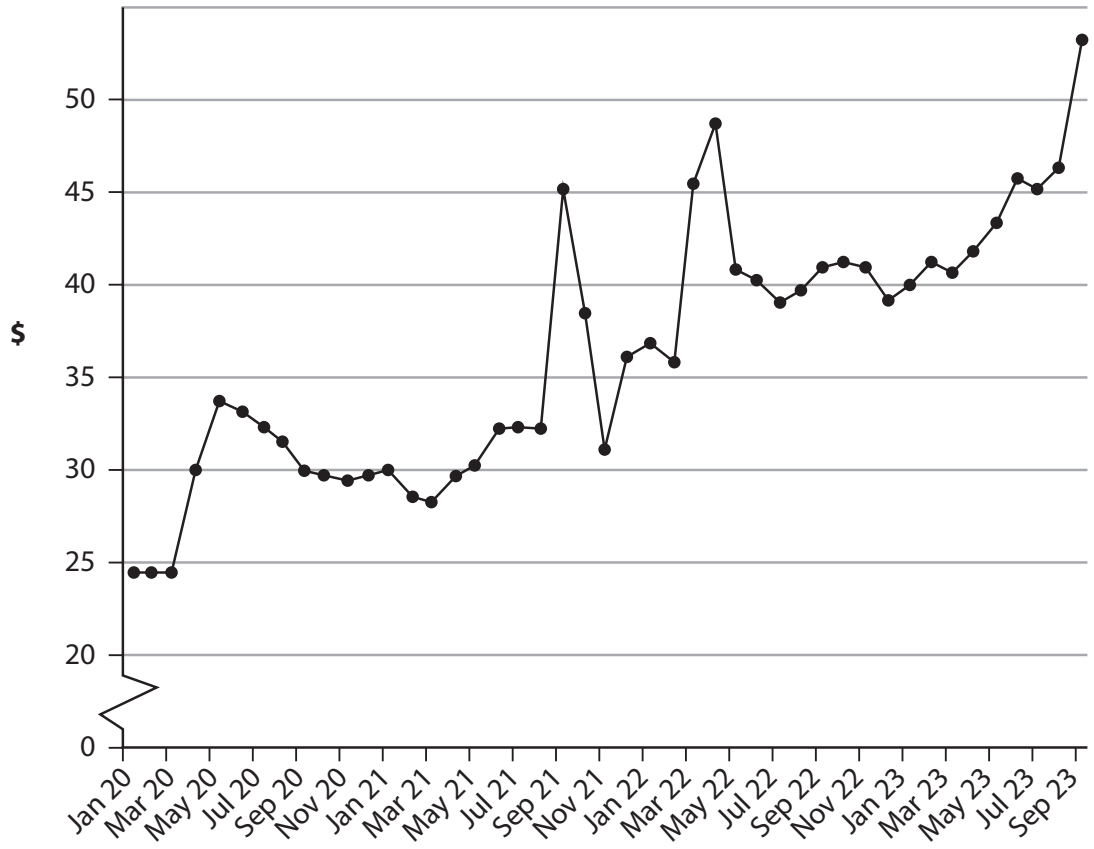
Illustrate your answer with an appropriate diagram.

(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.

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:

- 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.

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.

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.

(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)

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.

Illustrate your answer with a supply and demand diagram.

(6)

(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.

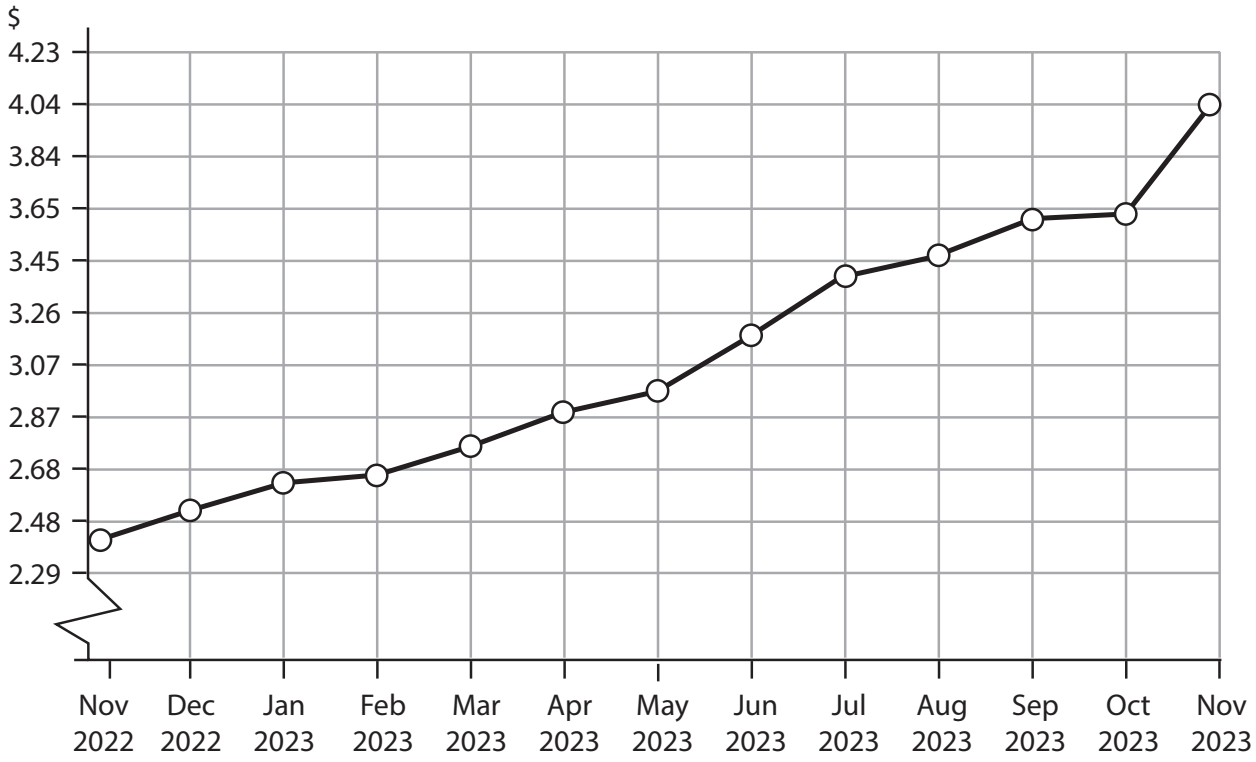
Illustrate your answer with an externalities diagram.

(14)

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.

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.

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.

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

- Cocoa farmers 6.6%
- Transport businesses 2.1%
- 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.

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.

(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.

Illustrate your answer with a supply and demand diagram.

(6)

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.

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.

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.

Extract C Environmental impact of container ships

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

- 2% of global CO_2 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
- 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.

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 CO_2 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.

(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)

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.

Illustrate your answer with a supply and demand diagram.

(6)

(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).

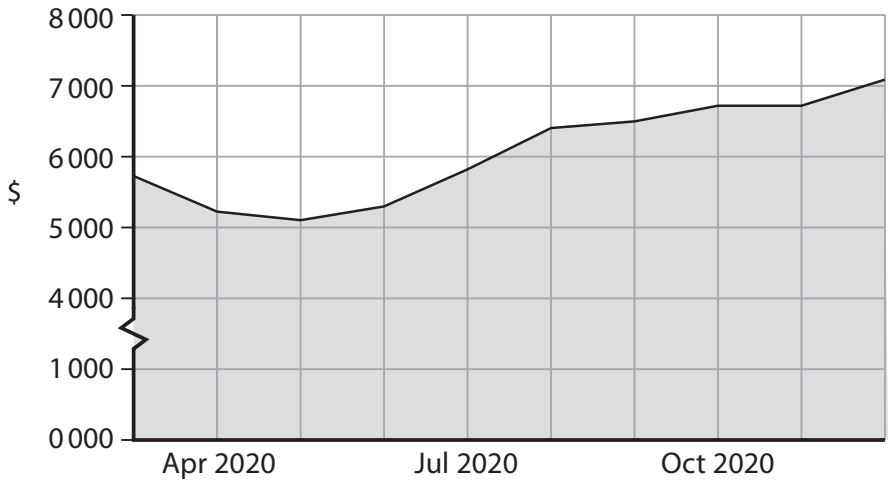
Illustrate your answer with an appropriate diagram.

(14)

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

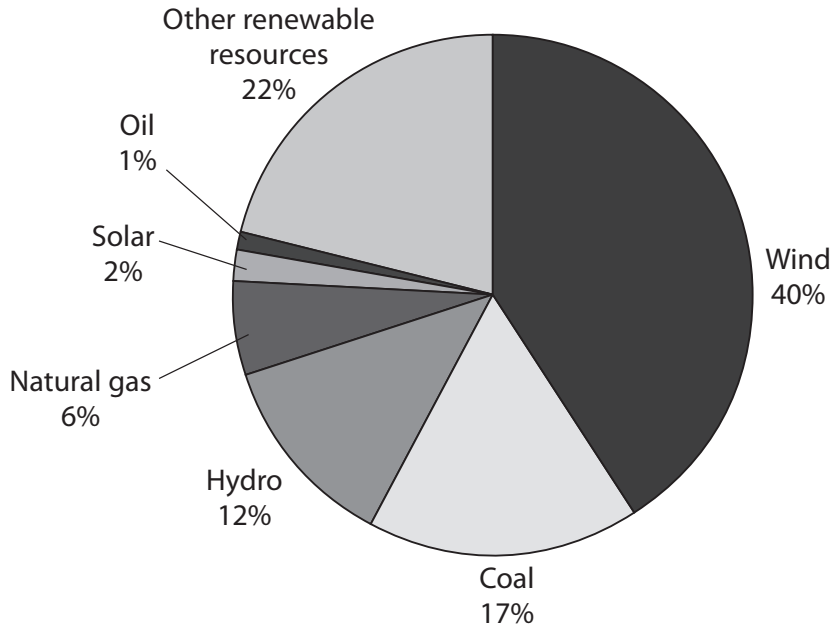


Extract A Copper prices rise

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.

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.

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.

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.

(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)

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.

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.

Extract B Excess demand for semiconductors affects car manufacturers

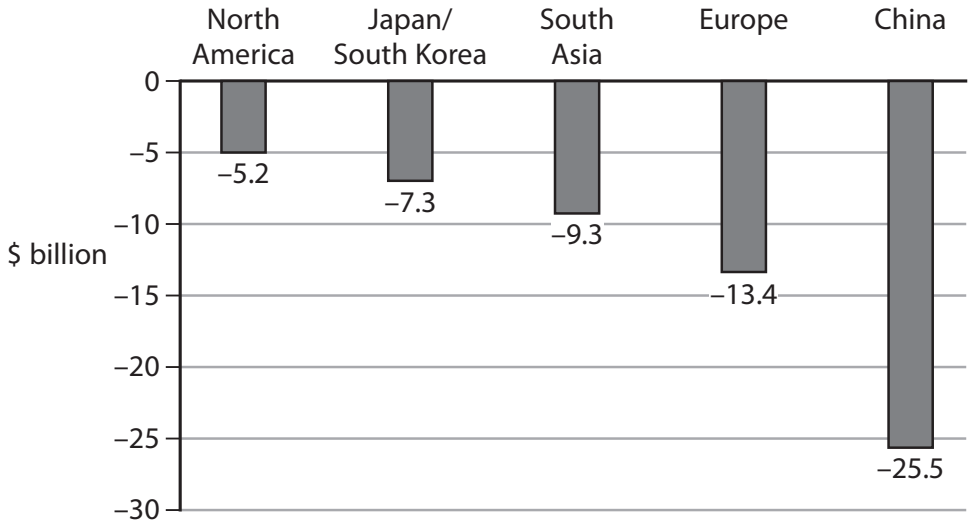
In 2021 the global demand for cars increased following very low sales in 2020. This increased the demand for semiconductors. However, the manufacturers of semiconductors were unable to supply the amount demanded, resulting in excess demand. As a result, many car manufacturers reduced production. For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

- 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.

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.

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.

(d) With reference to Extract B and Figure 1, examine **two** likely effects of excess demand for semiconductors on car manufacturers.

(8)

SECTION D

Answer ONE question from this section.

Write your answer in the space provided.

EITHER

13 In January 2022 average energy prices increased by 28.6% in the eurozone area. In response:

- the German Government provided subsidies to energy producers
- the Spanish Government reduced indirect taxes on energy bills
- the French Government introduced a maximum price on energy bills.

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.

(Total for Question 13 = 20 marks)

OR

14 Fertiliser is used by farmers to increase the output of crops per acre of farmland. In 2021 farmers experienced a 400% increase in the cost of fertiliser. Between March 2021 and March 2022 the global food price index increased by 38%.

Evaluate the impact of the 400% increase in the cost of fertiliser on farmers and households.

Include one diagram to show the impact on farmers 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 According to a German insurance company, global natural disasters have become more common in recent years. For example, there was an increase in natural disasters from 400 in 1990 to 820 in 2019.

Evaluate the microeconomic effects of an increase in the number of natural disasters.

Include at least one appropriate diagram in your answer.

(Total for Question 13 = 20 marks)

OR

14 In 2022 General Motors received a $1 billion subsidy from the US Government to open two new electric vehicle factories in the USA. This was expected to generate 4 000 new jobs.

Evaluate the microeconomic effects of subsidies paid to electric vehicle manufacturers.

Include at least one appropriate diagram in your answer.

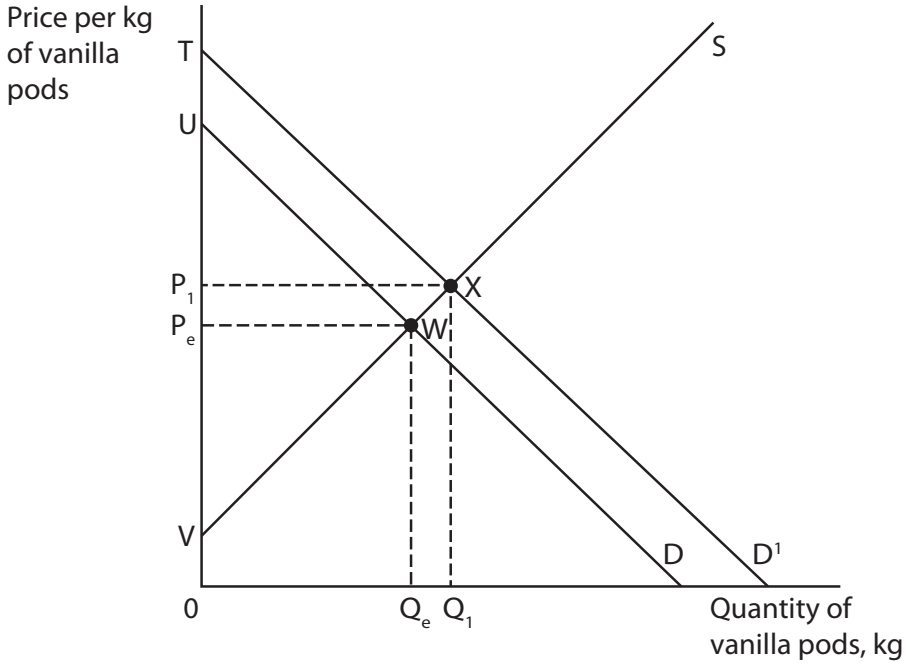
(Total for Question 14 = 20 marks)

SUB-TOPIC 1.3.4.2

CONSUMER AND PRODUCER SURPLUS

Sub-topic 1.3.4.2 · 15 questions · 71 marks · lowest tariff first

4 The diagram shows the market for vanilla pods.



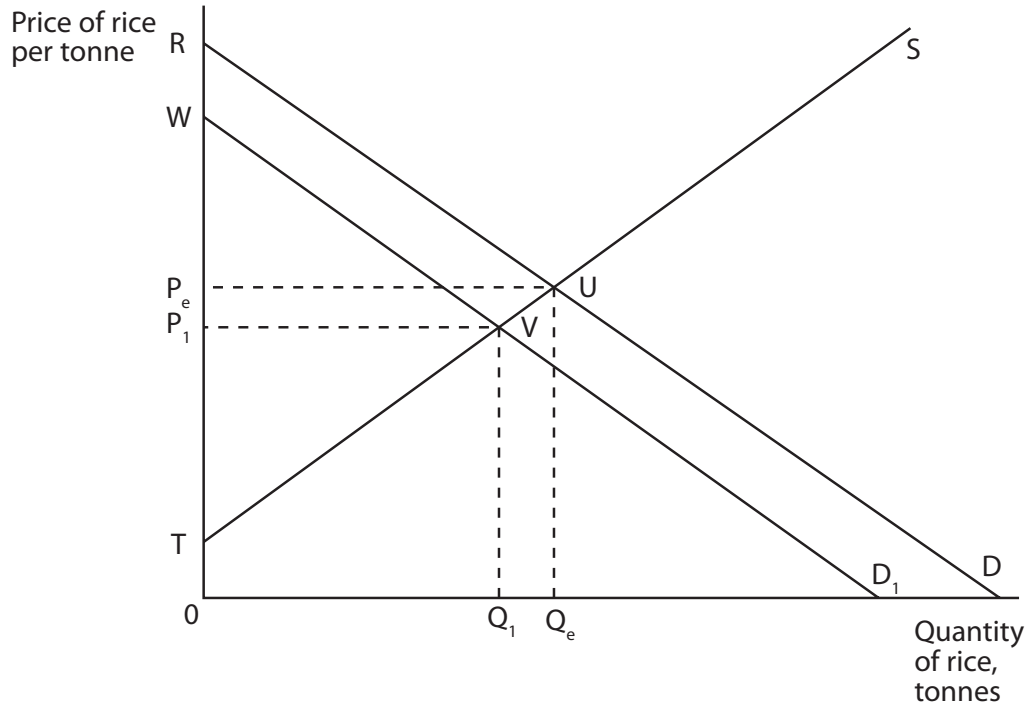
Madagascar is the world's largest supplier of vanilla pods. Higher demand for natural flavourings in rich countries has led to an increase in the demand for vanilla as shown in the diagram above.

This will result in an increase in

- ☒ **A** producer surplus to P_1TX
- ☒ **B** consumer surplus to P_eUW
- ☒ **C** producer surplus by P_eP_1XW
- ☒ **D** consumer surplus by P_eP_1XW

(Total for Question 4 = 1 mark)

5 In 2019 countries in Africa reduced the quantity of rice they imported. The diagram shows the impact of this on the world market for rice.



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

☒ **A** Government spending rises by VUQ_eQ_1

☒ **B** Total revenue of rice producers falls by VUQ_eQ_1

☒ **C** Consumer surplus rises by P_eUVP_1

☒ **D** Producer surplus falls by P_eUVP_1

(Total for Question 5 = 1 mark)

4 In South Africa demand for electric blankets increased by 250% in 2022.

Which of the following combinations is the most likely impact on the market for electric blankets?

	Consumer surplus	Price
☒ **A**	Decrease	Decrease
☒ **B**	Decrease	Increase
☒ **C**	Increase	Increase
☒ **D**	Increase	Decrease

(Total for Question 4 = 1 mark)

5 In July 2022 Amazon, the online retailer, announced that it would increase the price of its Amazon Prime subscription service from £79 to £95 per year. This resulted in 590 000 UK consumers cancelling their Amazon Prime subscriptions.

Which **one** of the following is the most likely explanation of this behaviour?

☒ **A** These consumers experienced inertia

☒ **B** These consumers experienced habitual behaviour

☒ **C** These consumers aimed to maximise their utility

☒ **D** These consumers aimed to minimise their utility

(Total for Question 5 = 1 mark)

11 In Ho Chi Minh City, Vietnam, the price of sand increased from VND510 000 to VND695 000 per cubic metre between April and May 2017. This was caused by reduced supply from Vietnamese mining companies.

Explain the likely impact of this change on producer surplus in the market for sand. Illustrate your answer with a diagram.

(Total for Question 11 = 4 marks)

TOTAL FOR SECTION B = 20 MARKS

11 In September 2018 the global price of wheat decreased by 3%. This was caused by an increase in supply from the USA.

Explain the likely impact of this fall in price on consumer surplus in the market for wheat. Illustrate your answer with a diagram.

(Total for Question 11 = 4 marks)

TOTAL FOR SECTION B = 20 MARKS

11 Several car manufacturers were found to have misled consumers about diesel emissions. As a result, many consumers substituted diesel cars that use platinum with petrol cars that use palladium. Consequently, the price of palladium increased by 46% between March 2019 and March 2020.

Explain the effect of this increase in price on producer surplus in the market for palladium. Illustrate your answer with a diagram.

(Total for Question 11 = 4 marks)

TOTAL FOR SECTION B = 20 MARKS

11 Between August 2018 and August 2019 the world price of sweet potatoes increased from $12 to $22.50 per box. This was caused by Hurricane Florence and heavy rains in the USA, the world's largest supplier.

Explain the likely impact of this change in price on consumer surplus in the market for sweet potatoes. Illustrate your answer with a diagram.

(Total for Question 11 = 4 marks)

TOTAL FOR SECTION B = 20 MARKS

11 Between January 2020 and May 2020 the price of bananas charged by retailers in the USA increased from $1.17 to $1.30 per kg. This was mainly caused by increased costs of transportation from banana growers to markets in North America.

Explain the likely impact of this change in price on consumer surplus.

Illustrate your answer with a diagram.

(Total for Question 11 = 4 marks)

TOTAL FOR SECTION B = 20 MARKS

11 Between August 2020 and August 2021 the world price of nectarines decreased from $1.83 to $1.42 per kg. This was caused by a good harvest in Spain, the world's largest producer.

Explain the likely impact of this change in price on consumer surplus in the market for nectarines.

Illustrate your answer with an appropriate diagram.

(Total for Question 11 = 4 marks)

TOTAL FOR SECTION B = 20 MARKS

11 In 2019 there were 15.7 million visitors to Legoland's eight theme parks globally. In 2021 this number decreased to 9.4 million.

Ceteris paribus, explain the likely impact of this decrease in visitor numbers on the producer surplus for Legoland.

Illustrate your answer with an appropriate diagram.

(4)

(Total for Question 11 = 4 marks)

TOTAL FOR SECTION B = 20 MARKS

11 Between 2017 and 2022 the cost to produce a Tesla electric vehicle decreased, on average, from $84 000 to $36 000. Other electric vehicle manufacturers experienced similar reductions in production costs.

Ceteris paribus, explain the likely impact of this change in production costs on producer surplus in the electric vehicle market.

Illustrate your answer with a supply and demand diagram.

(Total for Question 11 = 4 marks)

TOTAL FOR SECTION B = 20 MARKS

11 Between 2021 and 2022 the production of tomatoes in the EU decreased from 17.9 million tonnes to 15.5 million tonnes. The average price of tomatoes in the EU increased from €143 per tonne to €153 per tonne.

Ceteris paribus, explain the likely impact of this change in supply on consumer surplus in the tomato market.

Illustrate your answer with a supply and demand diagram.

(Total for Question 11 = 4 marks)

TOTAL FOR SECTION B = 20 MARKS

11 Between 2019 and 2022 the number of international visitors to Czechia decreased from 6.8 million to 4.5 million.

Ceteris paribus, explain the likely impact on producer surplus in the hotel market in Czechia.

Illustrate your answer with a supply and demand diagram.

(Total for Question 11 = 4 marks)

TOTAL FOR SECTION B = 20 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)

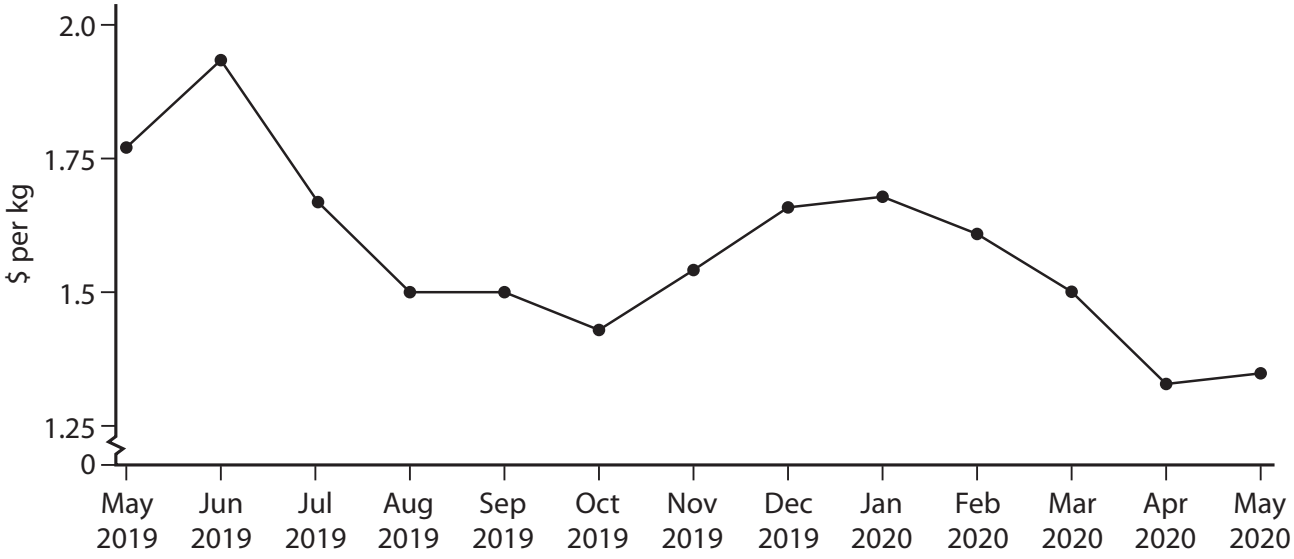
(e) With reference to Extract B, discuss the external costs associated with tyre production and consumption.

(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.

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.

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.

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.

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.

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.

(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)

SECTION D

Answer ONE question from this section.

Write your answer in the space provided.

EITHER

13 The table shows the global sales of electric vehicles in 2017 and 2023.

Year	Sales of electric vehicles
2017	1 180 000
2023	13 800 000

Evaluate the microeconomic benefits of this increase in demand for electric vehicles.

Illustrate your answer with a supply and demand diagram.

(Total for Question 13 = 20 marks)

OR

14 The Governments of the UK, Spain and Italy have introduced a tax on plastic packaging. This is charged on any plastic packaging with more than 30% that cannot be recycled.

The table shows the amount of tax charged in each country.

Country	Tax per tonne
UK	$250
Spain	$465
Italy	$465

Evaluate the microeconomic benefits of introducing a tax on plastic packaging.

Illustrate your answer with a supply and demand diagram.

(Total for Question 14 = 20 marks)

SUB-TOPIC 1.3.4.3

FUNCTIONS OF THE PRICE MECHANISM

Sub-topic 1.3.4.3 · 3 questions · 6 marks · lowest tariff first

2 Which **one** of the following is a function of the price mechanism?

- ☒ **A** To create an incentive for producers to decrease the quantity supplied when the price increases.
- ☒ **B** To encourage government intervention to allocate scarce resources.
- ☒ **C** To provide a signal to producers and consumers about changes in supply and demand when prices change.
- ☒ **D** To ration scarce resources by allowing prices to decrease when demand increases.

(Total for Question 2 = 1 mark)

3 Which **one** of the following is a cause of government failure?

- ☒ **A** Excessive administrative costs involved in meeting environmental regulations.
- ☒ **B** A market bubble causing the price to rise excessively.
- ☒ **C** The existence of free riders leading to the under-production of public goods.
- ☒ **D** Under-production of foods with external benefits.

(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 function of the price mechanism?

- ☒ **A** An increase in the price of hand sanitisers, caused by an increase in demand, will ration them to those who are most able to pay
- ☒ **B** A decrease in the price of carrots, caused by excess supply, provides farmers with the incentive to increase supply
- ☒ **C** A decrease in the price of tinned meat is a signal to producers that demand for it is increasing
- ☒ **D** An increase in the price of petrol is a signal to the government to impose a maximum price

(Total for Question 1 = 1 mark)

2 A clothing manufacturer originally organised production so that each worker made a garment from start to finish. However, in 2020, the manufacturer introduced the division of labour to garment production.

Which **one** of the following is a likely advantage of introducing the division of labour?

- ☒ **A** An increase in boredom
- ☒ **B** An increase in the cost of making each garment
- ☒ **C** An increase in output per worker
- ☒ **D** An increase in the time required for training

(Total for Question 2 = 1 mark)

9 In 2021 the global price of cotton increased substantially. This resulted in an increase in the price of a cotton t-shirt from $1.50 to $2.

Rising fertiliser costs caused farmers to switch from growing wheat for bread production to growing wheat for animal feed that requires less fertiliser.

With reference to the information given, explain the difference between the rationing function and the incentive function of the price mechanism.

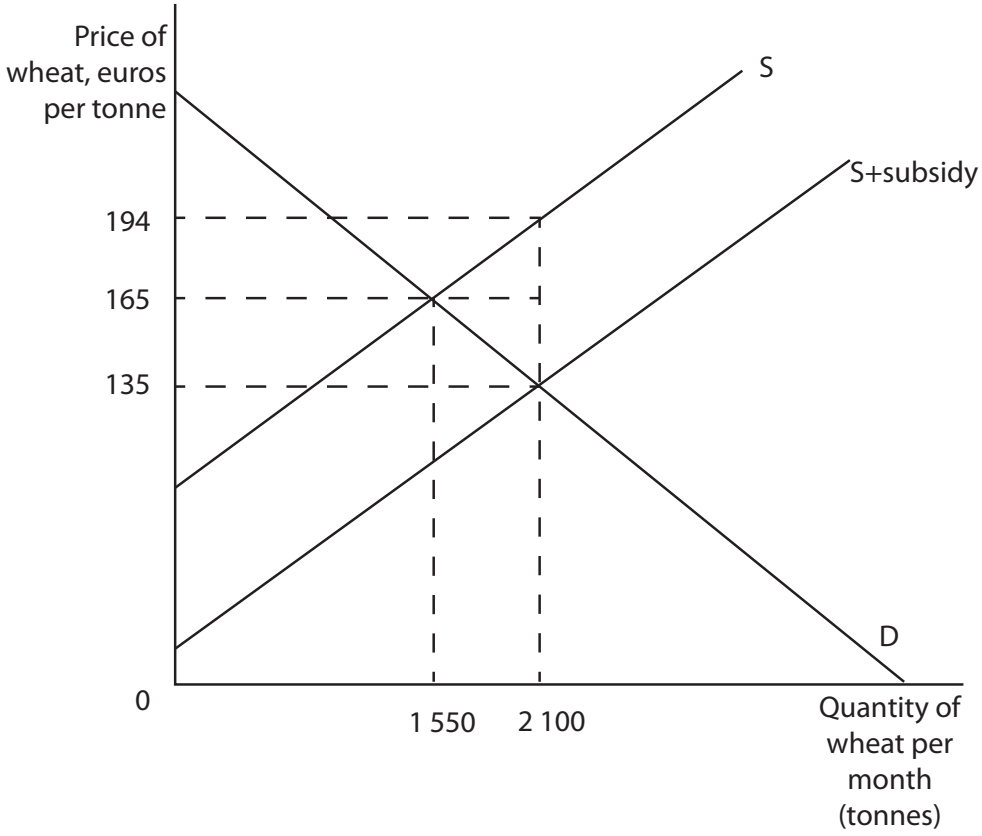
(Total for Question 9 = 4 marks)

SUB-TOPIC 1.3.4.4

INDIRECT TAXES AND SUBSIDIES

Sub-topic 1.3.4.4 · 35 questions · 371 marks · lowest tariff first

4 The diagram shows the market for wheat in the European Union after the introduction of a subsidy.

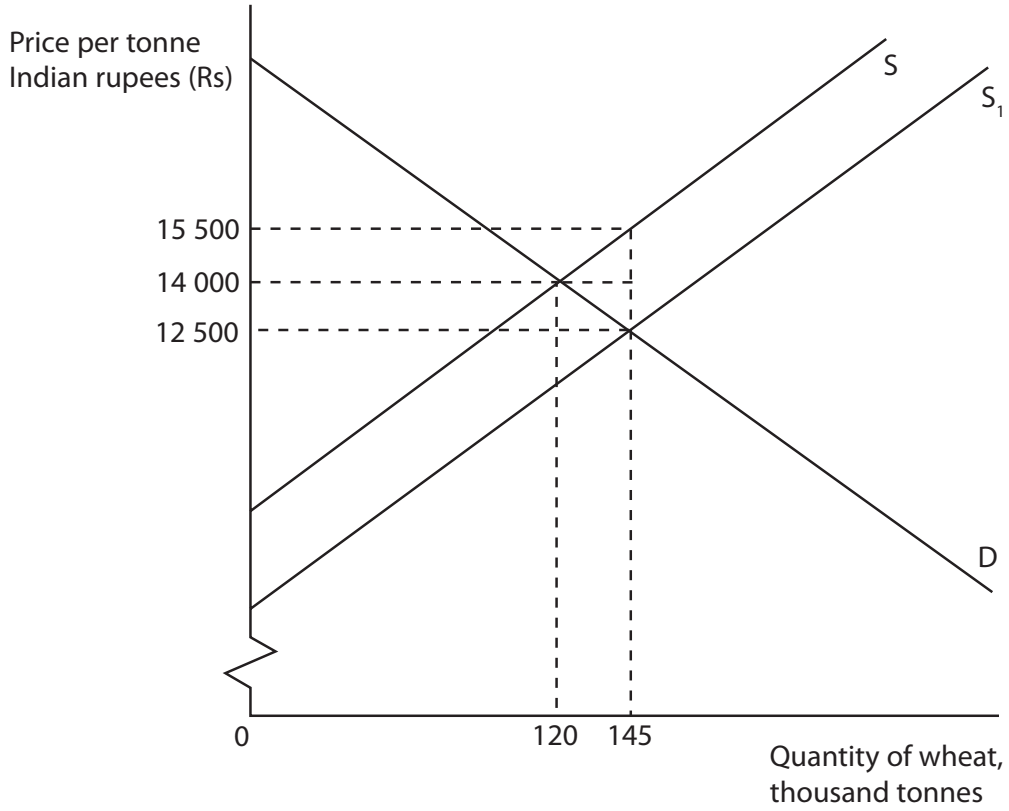


Which **one** of the following is the consumer incidence of the subsidy?

- ☒ **A** €60 900
- ☒ **B** €63 000
- ☒ **C** €123 900
- ☒ **D** €283 500

(Total for Question 4 = 1 mark)

6 The diagram shows the market for wheat in India. It illustrates the introduction of a subsidy for the production of wheat by the Indian Government.



Which one of the following is the producer incidence of the subsidy?

- ☒ **A** Rs 217 500 000
- ☒ **B** Rs 435 000 000
- ☒ **C** Rs 1 812 500 000
- ☒ **D** Rs 2 247 500 000

(Total for Question 6 = 1 mark)

TOTAL FOR SECTION A = 6 MARKS

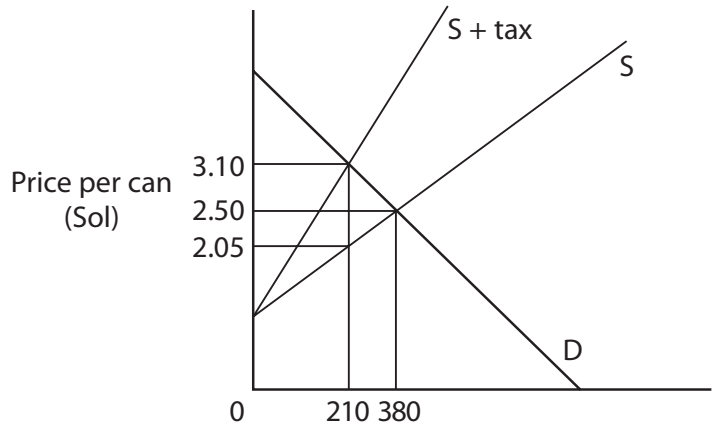
5 In the UK, consumers who remain loyal to their broadband provider pay, on average, an extra £113 per year.

Which **one** of the following is an example of inertia in the broadband market?

- ☒ **A** Consumers remain with their current provider because they cannot calculate the possible savings
- ☒ **B** Consumers remain with their current provider because they do not feel valued
- ☒ **C** Consumers remain with their current provider because they are influenced by the behaviour of their friends and family
- ☒ **D** Consumers remain with their current provider because they believe that the effort required to switch will be too great

(Total for Question 5 = 1 mark)

6 The diagram shows the market for a sugar-sweetened drink in Peru. In 2018 Peru's Government imposed an ad valorem tax on sugar-sweetened drinks.



Which **one** of the following shows the value of the consumer incidence of the tax?

- ☒ **A** Sol 94 500
- ☒ **B** Sol 126 000
- ☒ **C** Sol 220 500
- ☒ **D** Sol 228 000

(Total for Question 6 = 1 mark)

TOTAL FOR SECTION A = 6 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 '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.

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
- 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.

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

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.

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)

SECTION B

Answer ALL questions in this section in the space provided.

7 Saudi Arabia introduced its first indirect tax on the sale of goods and services in 2018. The tax is charged at 5% of the price of goods and services.

Draw a diagram to illustrate the impact of the introduction of the indirect tax on the equilibrium price and quantity of petrol in Saudi Arabia.

(Total for Question 7 = 4 marks)

SECTION B

Answer ALL questions in this section in the space provided.

7 In 2016 the Nigerian Government removed the subsidy on petrol.

Draw a diagram to illustrate the impact of the removal of the subsidy on the equilibrium price and quantity of petrol.

(Total for Question 7 = 4 marks)

SECTION B

Answer ALL questions in this section in the space provided.

7 In October 2017 the United Arab Emirates (UAE) introduced an indirect tax on energy drinks. The tax is charged at 50% of the price of energy drinks.

Draw a diagram to illustrate the impact of the introduction of the indirect tax on the equilibrium price and quantity of energy drinks in the UAE.

(Total for Question 7 = 4 marks)

SECTION B

Answer ALL questions in this section in the space provided.

7 China aims to increase electricity generation from renewable resources. China's Government has introduced a subsidy for solar panel manufacturers.

Draw a diagram to illustrate the impact of the introduction of a subsidy on the market for solar panels.

Show the new equilibrium price and quantity and the area of government expenditure on the subsidy in your diagram.

(Total for Question 7 = 4 marks)

11 Eating too much salt is associated with a higher risk of heart disease and stomach cancer. Every year 1.5 million deaths are attributed to excess salt in food. In the UK, the National Food Strategy recommended that an indirect tax of £6 per kg is introduced on salt added to food by manufacturers.

Explain the impact of the introduction of this indirect tax on the market for food products containing salt added by manufacturers.

Illustrate your answer with an appropriate diagram.

(Total for Question 11 = 4 marks)

TOTAL FOR SECTION B = 20 MARKS

11 In January 2022 Vietnam's Government introduced an indirect tax on online sales. This was charged at 10% on all online transactions.

Explain the impact of the introduction of this indirect tax on the market for paperback books sold online in Vietnam.

Illustrate your answer with an appropriate diagram.

(Total for Question 11 = 4 marks)

TOTAL FOR SECTION B = 20 MARKS

9 In 2022 the Government of Zimbabwe introduced a tax on energy drinks of $0.05 per litre and a tax on smartphones of $50 per device. In 2023 the Government increased its VAT (consumption tax) rate from 14.5% to 15%.

With reference to Zimbabwe, explain the difference between a 'specific tax' and an 'ad valorem tax'.

(Total for Question 9 = 4 marks)

SECTION B

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

7 In 2023 the Government of France considered imposing an indirect tax on aviation fuel for those using private jets. This was to be set at a rate of €0.65 per litre.

Draw a diagram to illustrate the impact of imposing this indirect tax on aviation fuel for private jets.

(Total for Question 7 = 4 marks)

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.

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.

Illustrate your answer with an appropriate diagram.

(14)

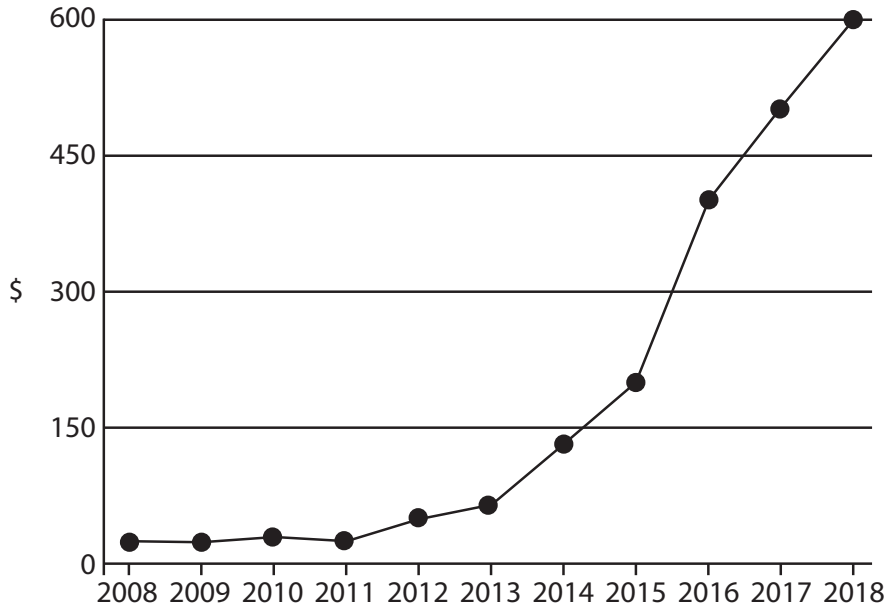
Sources for use with Section C.

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.

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.

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.

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.

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%.

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.

(d) With reference to Extract C, examine two microeconomic effects of Finland's decision to remove the sugar tax.

(8)

SECTION C

Study Figure 1 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 'renewable resource' (Extract B, line 19).

(2)

(b) Explain what is meant by the term 'rational decision'. Refer to Extract B in your answer.

(4)

(c) Analyse why the global price of oil fell in the first quarter of 2020. Refer to Figure 1 and Extract A in your answer.

Illustrate your answer with a supply and demand diagram.

(6)

(d) With reference to Extract A, examine **two** likely effects of the high level of indirect taxation on diesel and petrol in India.

(8)

(e) With reference to Extract B, discuss the likely microeconomic effects of the subsidy paid to the manufacturers of electric cars.

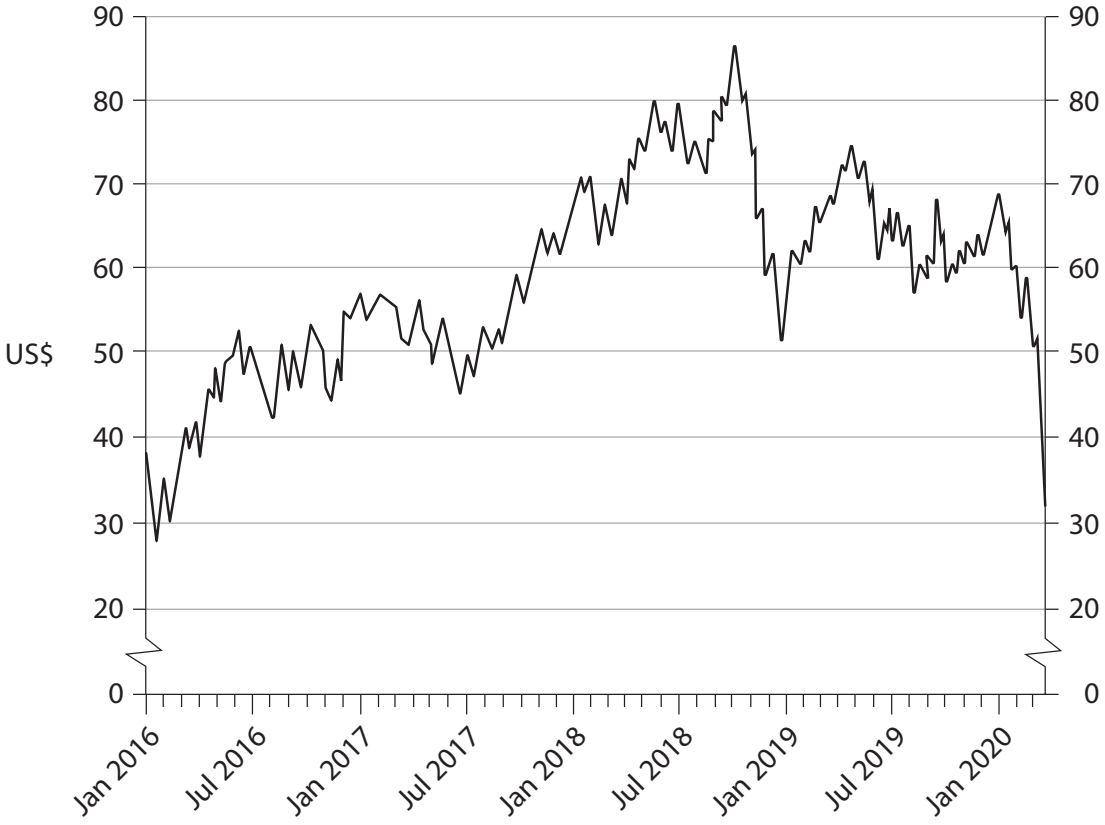
Illustrate your answer with an appropriate diagram.

(14)

Sources for use with Section C.

The markets for oil and electric cars

Figure 1 Global price of oil per barrel, US$ 2016–2020



Extract A Oil price fall

The global price of oil fell in the first quarter of 2020 after governments restricted the movement of people. Many offices and factories closed, causing a significant reduction in production. With less transport and energy needed, the demand for oil decreased. Oil producing countries, led by Saudi Arabia, planned to reduce production in order to increase the price of oil. However, Russia increased its production, so Saudi Arabia responded by increasing its production.

In India the significant fall in the global oil price only resulted in a 7% decrease in the price of petrol and diesel. One reason for this is the high level of indirect taxation on petrol and diesel in the country. In India almost half the price of petrol and diesel is in the form of indirect taxation.

Extract B Canadian electric car subsidy

Road transportation accounts for 20% of Canada's carbon emissions. The Canadian Government aims to remove all petrol and diesel cars by 2040. However, in 2019 only 2% of cars were electric.

In 2019 the government introduced a $5 000 subsidy to encourage electric car sales. This subsidy is paid to the manufacturers of electric cars. This will apply to electric cars with a price below $45 000. There are just nine electric car models available for under $45 000.

Indirect taxes are added to the price of a petrol Volkswagen (VW) Golf. With the subsidy it would be cheaper to buy the electric VW Golf. The rational decision would be to purchase the cheaper electric VW Golf.

A problem is that there are only 5 800 charging points that are accessible to Canada's 37 million population. By comparison, in Norway there are 176 000 charging points for the population of just 5 million. The Canadian Government is planning to spend $130 million to increase the number of charging stations.

Electric cars have zero carbon emissions when being driven. However, to produce an electric car battery requires twice as much energy compared with the production of a petrol or diesel car battery. In addition, the electricity used to power the electric vehicle creates emissions if the electricity is generated using fossil fuels like coal. In Canada 60% of electricity is generated using hydroelectricity, a renewable resource, whereas in Norway it is 96%.

(d) With reference to Extract A, examine **two** likely effects of the high level of indirect taxation on diesel and petrol in India.

(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 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.

Illustrate your answer with a supply and demand diagram.

(6)

(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.

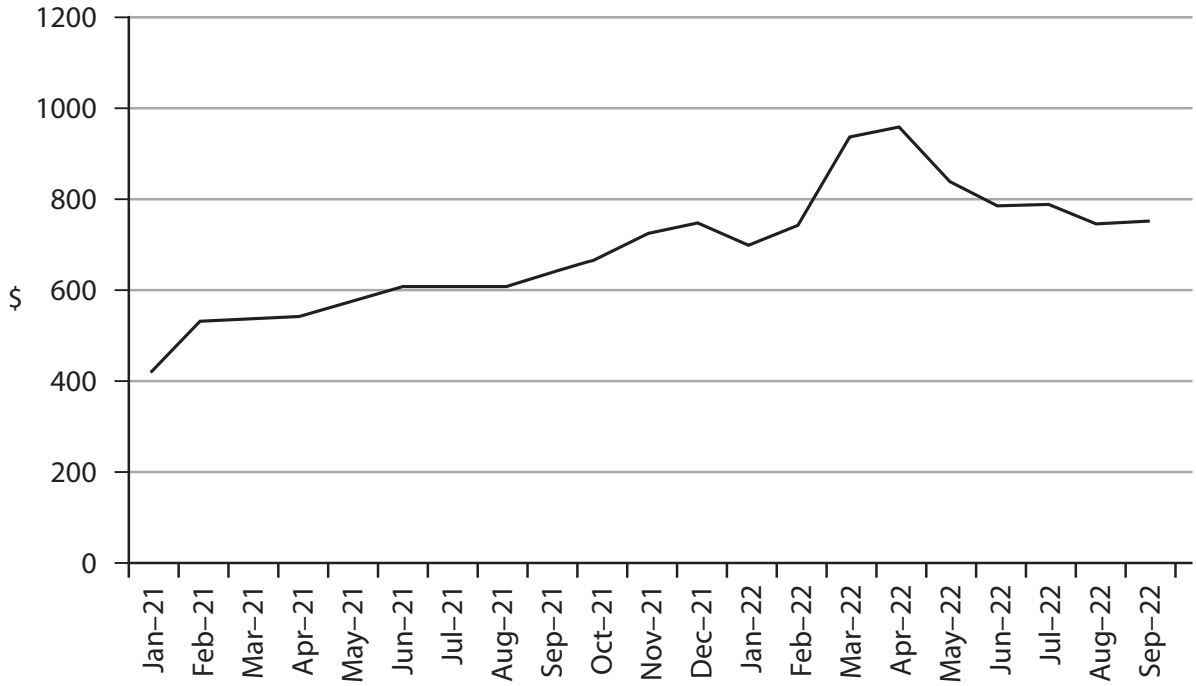
Illustrate your answer with an appropriate diagram.

(14)

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.

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.

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. 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. 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. 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 farming methods to achieve this target.

(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)

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.

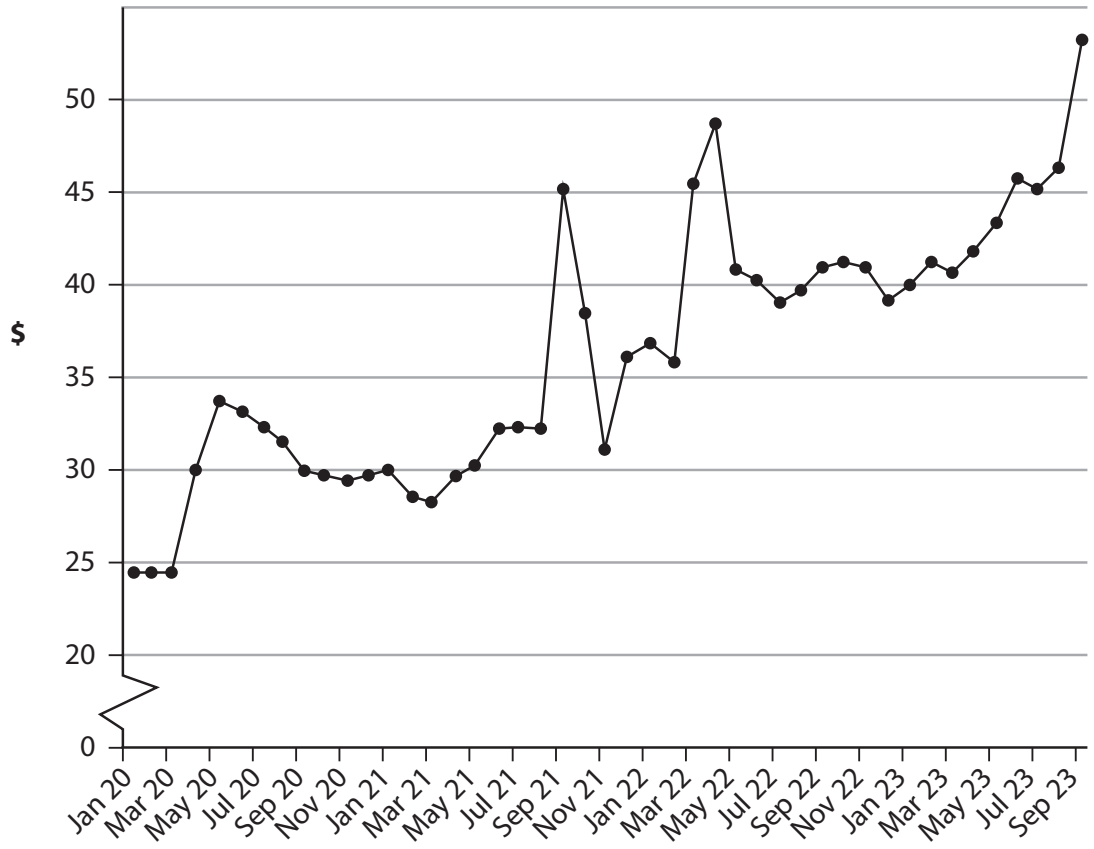
Illustrate your answer with an appropriate diagram.

(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.

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:

- 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.

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.

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.

(d) With reference to Extract C, examine **two** microeconomic effects of the introduction of an indirect tax on the production of coal.

(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 '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.

Illustrate your answer with a supply and demand diagram.

(6)

(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.

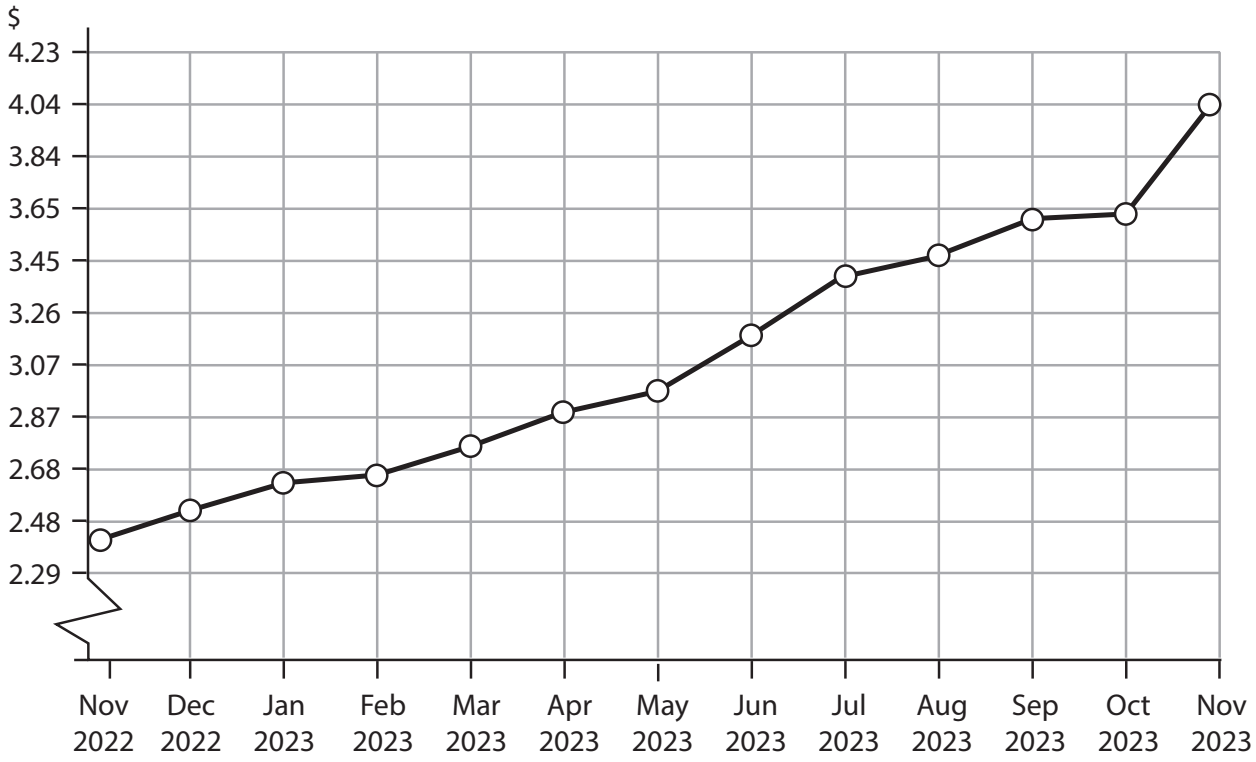
Illustrate your answer with an externalities diagram.

(14)

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.

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.

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.

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

- Cocoa farmers 6.6%
- Transport businesses 2.1%
- 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.

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.

(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)

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)

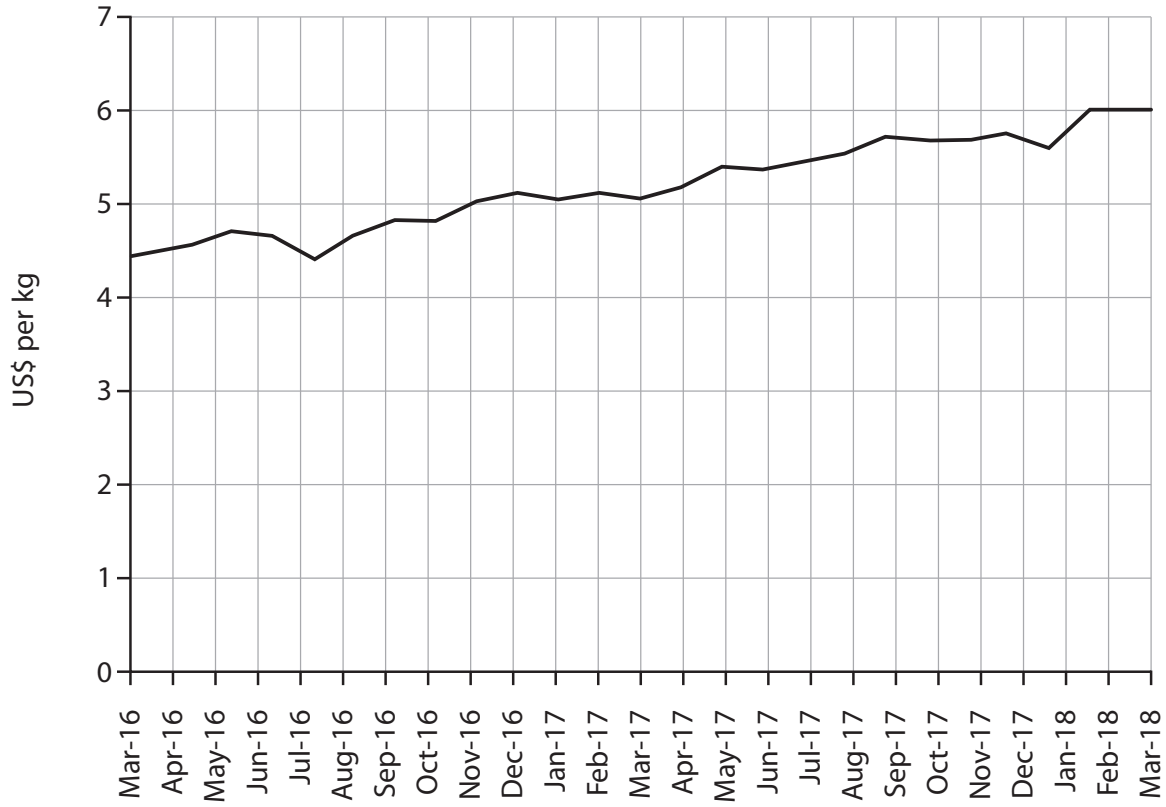
Sources for use with Section C.

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.

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.

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.

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.

(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)

(Total for Question 12 = 34 marks)

TOTAL FOR SECTION C = 34 MARKS

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).

Illustrate your answer with a supply and demand diagram.

(6)

(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.

Illustrate your answer with an appropriate diagram.

(14)

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.

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
- 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.

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.

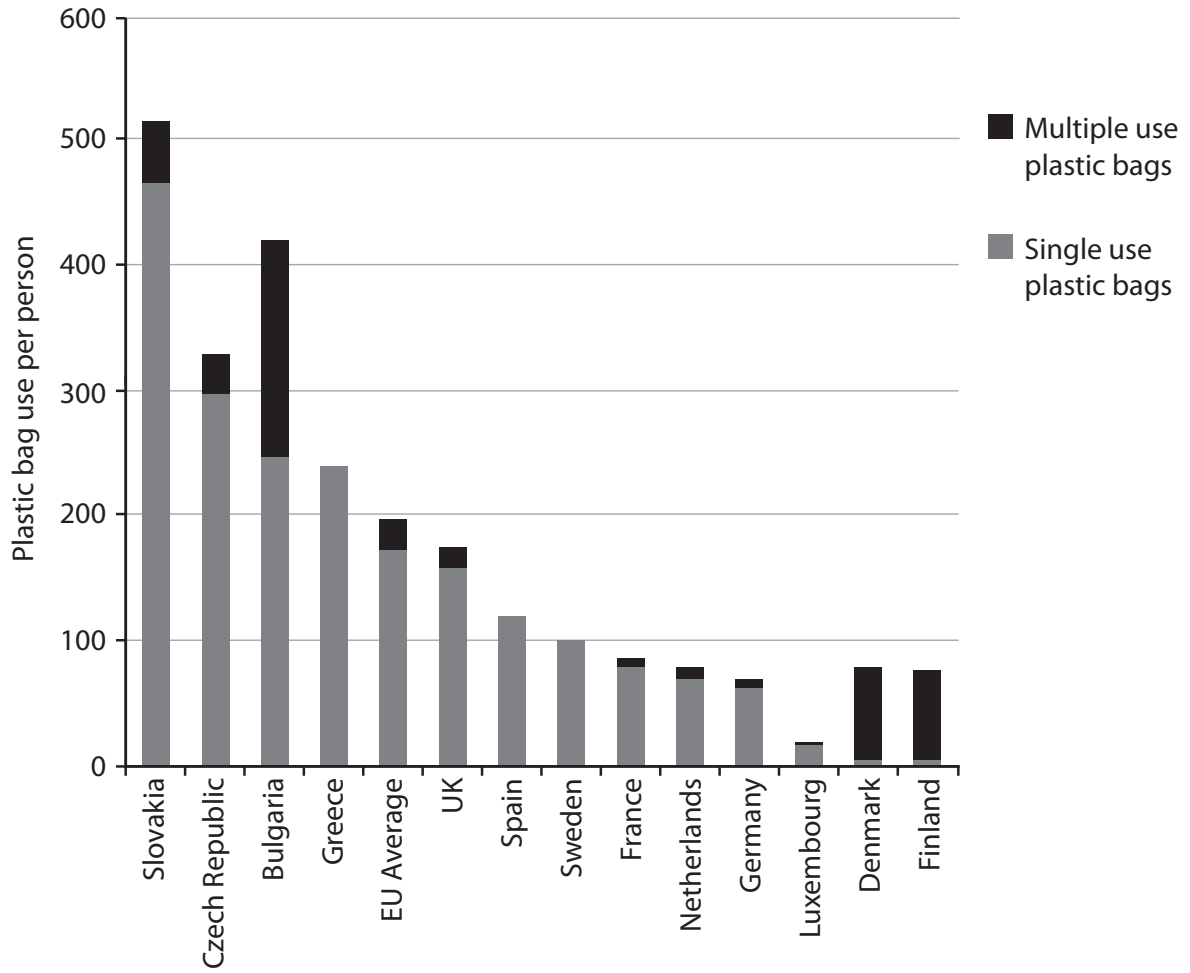
In 1994 Denmark introduced a plastic bag tax of €0.27 per bag which supermarkets have passed onto consumers. However, clothing shops do not charge consumers for the bags and pay the tax themselves. In the year before the tax was introduced 800 million bags were used and in the year after the tax this 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%.

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.

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



(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.

Illustrate your answer with an appropriate diagram.

(14)

(Total for Question 12 = 34 marks)

TOTAL FOR SECTION C = 34 MARKS

SECTION C

Study Figure 1 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 'renewable resource' (Extract B, line 19).

(2)

(b) Explain what is meant by the term 'rational decision'. Refer to Extract B in your answer.

(4)

(c) Analyse why the global price of oil fell in the first quarter of 2020. Refer to Figure 1 and Extract A in your answer.

Illustrate your answer with a supply and demand diagram.

(6)

(d) With reference to Extract A, examine **two** likely effects of the high level of indirect taxation on diesel and petrol in India.

(8)

(e) With reference to Extract B, discuss the likely microeconomic effects of the subsidy paid to the manufacturers of electric cars.

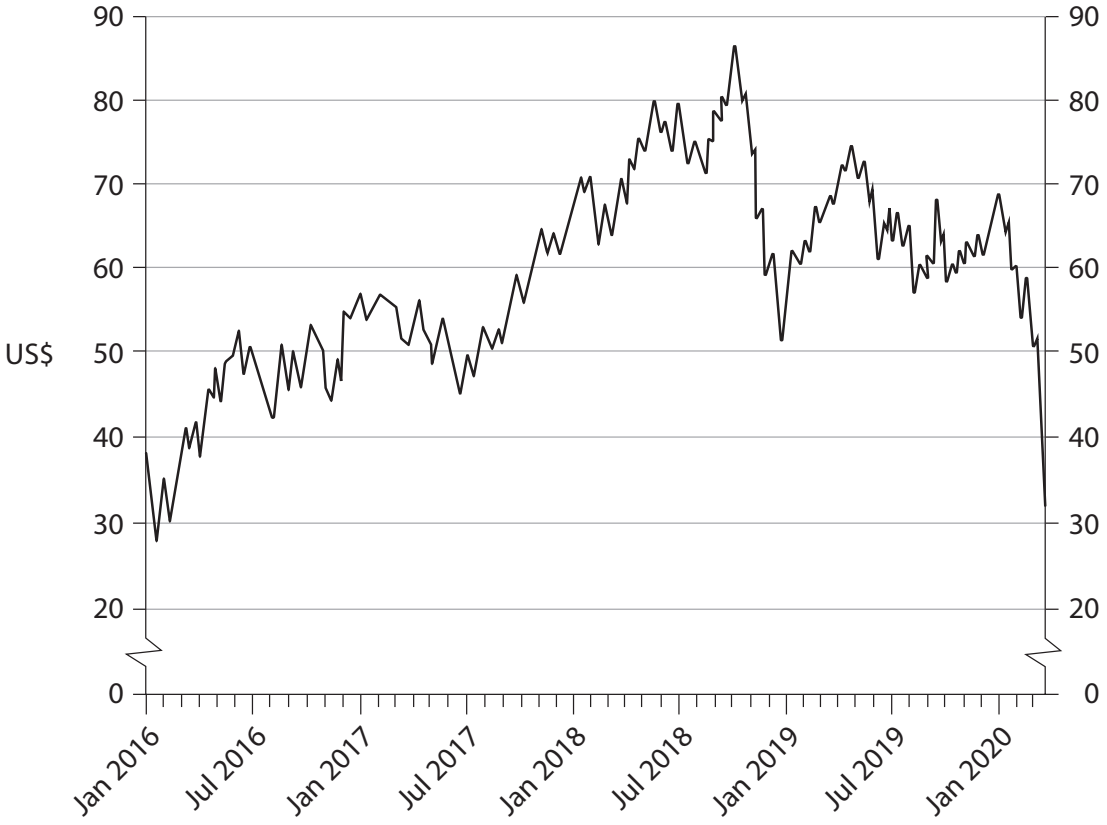
Illustrate your answer with an appropriate diagram.

(14)

Sources for use with Section C.

The markets for oil and electric cars

Figure 1 Global price of oil per barrel, US$ 2016–2020



Extract A Oil price fall

The global price of oil fell in the first quarter of 2020 after governments restricted the movement of people. Many offices and factories closed, causing a significant reduction in production. With less transport and energy needed, the demand for oil decreased. Oil producing countries, led by Saudi Arabia, planned to reduce production in order to increase the price of oil. However, Russia increased its production, so Saudi Arabia responded by increasing its production.

In India the significant fall in the global oil price only resulted in a 7% decrease in the price of petrol and diesel. One reason for this is the high level of indirect taxation on petrol and diesel in the country. In India almost half the price of petrol and diesel is in the form of indirect taxation.

Extract B Canadian electric car subsidy

Road transportation accounts for 20% of Canada's carbon emissions. The Canadian Government aims to remove all petrol and diesel cars by 2040. However, in 2019 only 2% of cars were electric.

In 2019 the government introduced a $5 000 subsidy to encourage electric car sales. This subsidy is paid to the manufacturers of electric cars. This will apply to electric cars with a price below $45 000. There are just nine electric car models available for under $45 000.

Indirect taxes are added to the price of a petrol Volkswagen (VW) Golf. With the subsidy it would be cheaper to buy the electric VW Golf. The rational decision would be to purchase the cheaper electric VW Golf.

A problem is that there are only 5 800 charging points that are accessible to Canada's 37 million population. By comparison, in Norway there are 176 000 charging points for the population of just 5 million. The Canadian Government is planning to spend $130 million to increase the number of charging stations.

Electric cars have zero carbon emissions when being driven. However, to produce an electric car battery requires twice as much energy compared with the production of a petrol or diesel car battery. In addition, the electricity used to power the electric vehicle creates emissions if the electricity is generated using fossil fuels like coal. In Canada 60% of electricity is generated using hydroelectricity, a renewable resource, whereas in Norway it is 96%.

(e) With reference to Extract B, discuss the likely microeconomic effects of the subsidy paid to the manufacturers of electric cars.

Illustrate your answer with an appropriate diagram.

(14)

(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 '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.

Illustrate your answer with a supply and demand diagram.

(6)

(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.

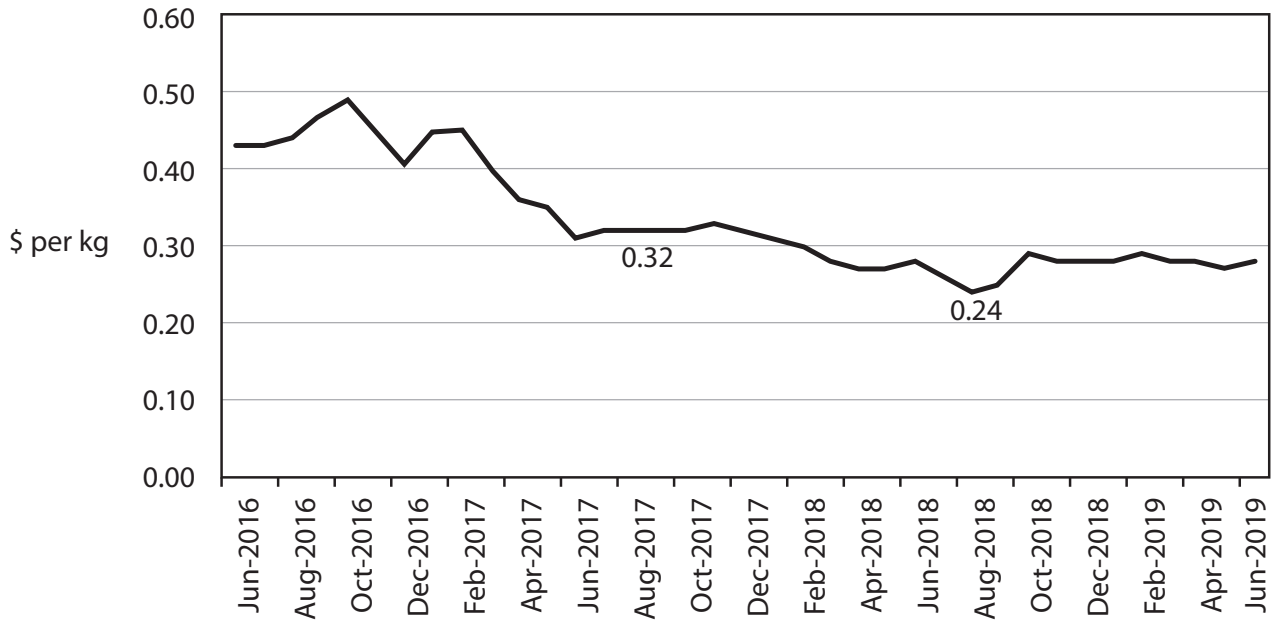
Illustrate your answer with an appropriate diagram.

(14)

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.

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.

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. 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.

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.

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.

(e) 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.

(14)

(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 '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.

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
- 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.

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

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.

(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)

(Total for Question 12 = 34 marks)

TOTAL FOR SECTION C = 34 MARKS

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.

Illustrate your answer with a supply and demand diagram.

(6)

(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).

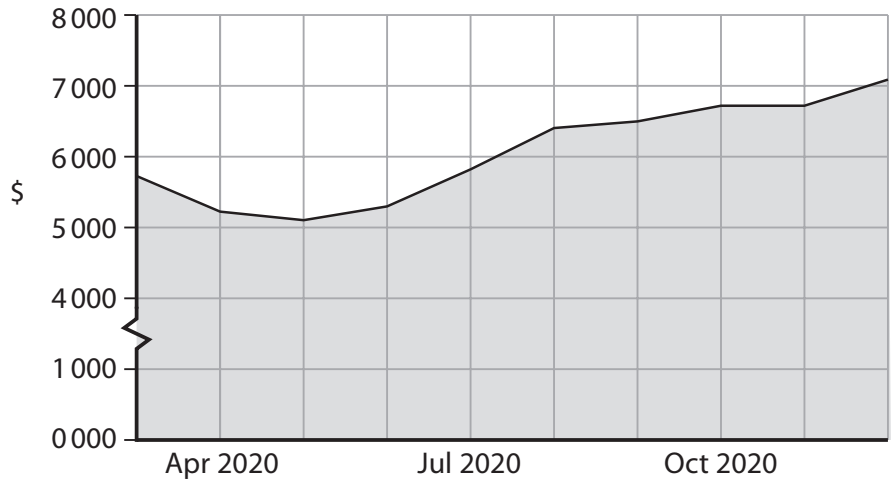
Illustrate your answer with an appropriate diagram.

(14)

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

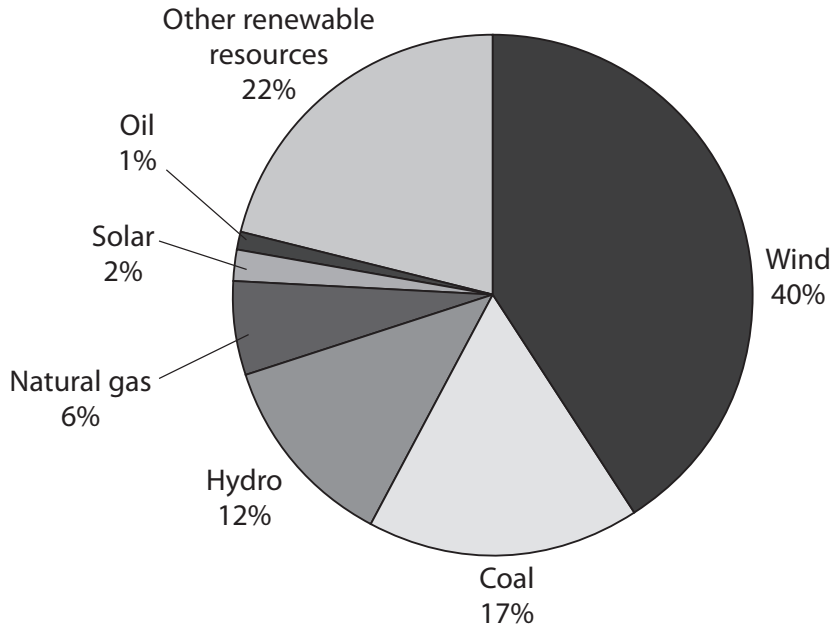


Extract A Copper prices rise

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.

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.

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.

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.

(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).

Illustrate your answer with an appropriate diagram.

(14)

(Total for Question 12 = 34 marks)

TOTAL FOR SECTION C = 34 MARKS

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.

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.

Extract B Excess demand for semiconductors affects car manufacturers

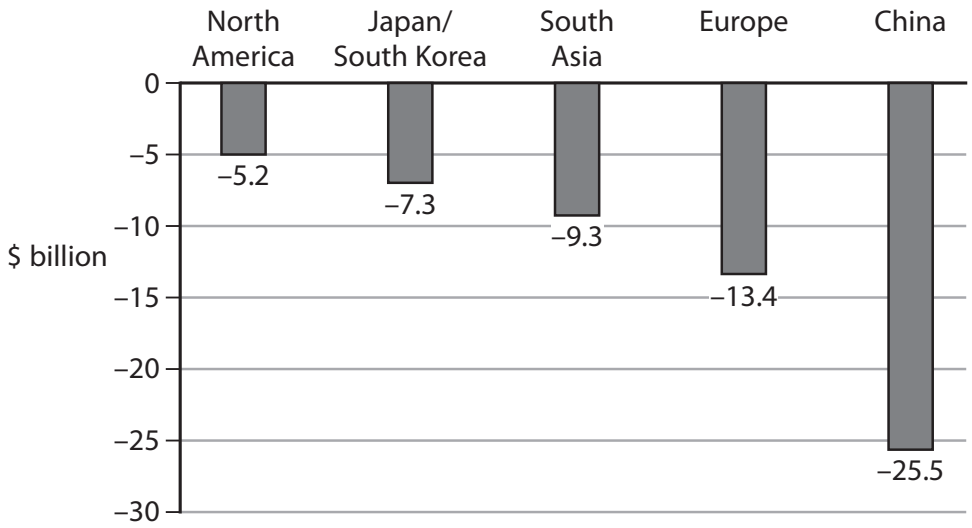
In 2021 the global demand for cars increased following very low sales in 2020. This increased the demand for semiconductors. However, the manufacturers of semiconductors were unable to supply the amount demanded, resulting in excess demand. As a result, many car manufacturers reduced production. For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

- 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.

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.

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.

(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)

(Total for Question 12 = 34 marks)

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 '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

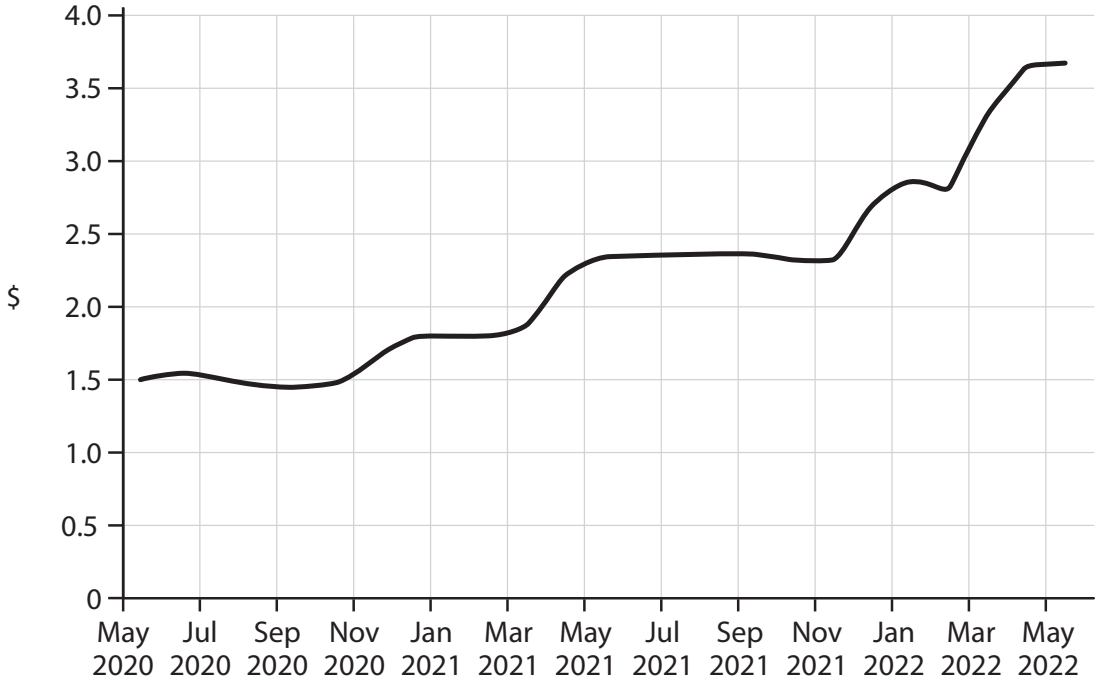


Figure 2

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.

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.

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.

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.

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

- 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
- 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.

(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)

(Total for Question 12 = 34 marks)

TOTAL FOR SECTION C = 34 MARKS

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.

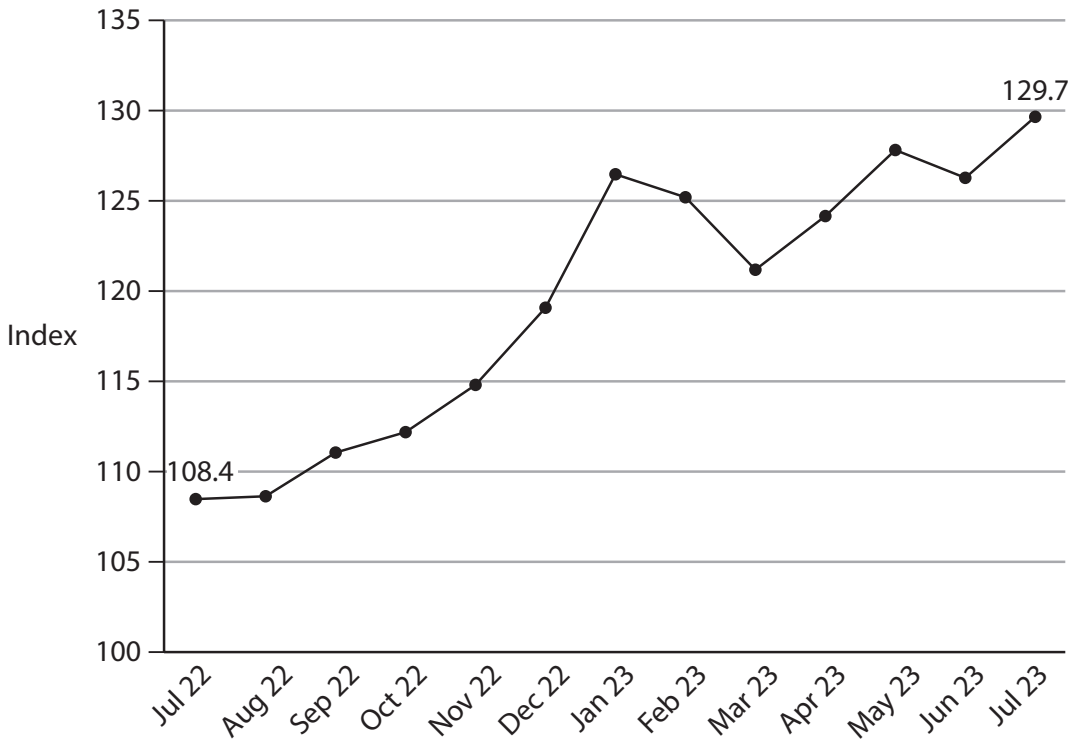
Illustrate your answer with an appropriate diagram.

(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.

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.

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.

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.

(e) With reference to Extract C, discuss the benefits of subsidies paid to rice growers.

Illustrate your answer with an appropriate diagram.

(14)

(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 '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.

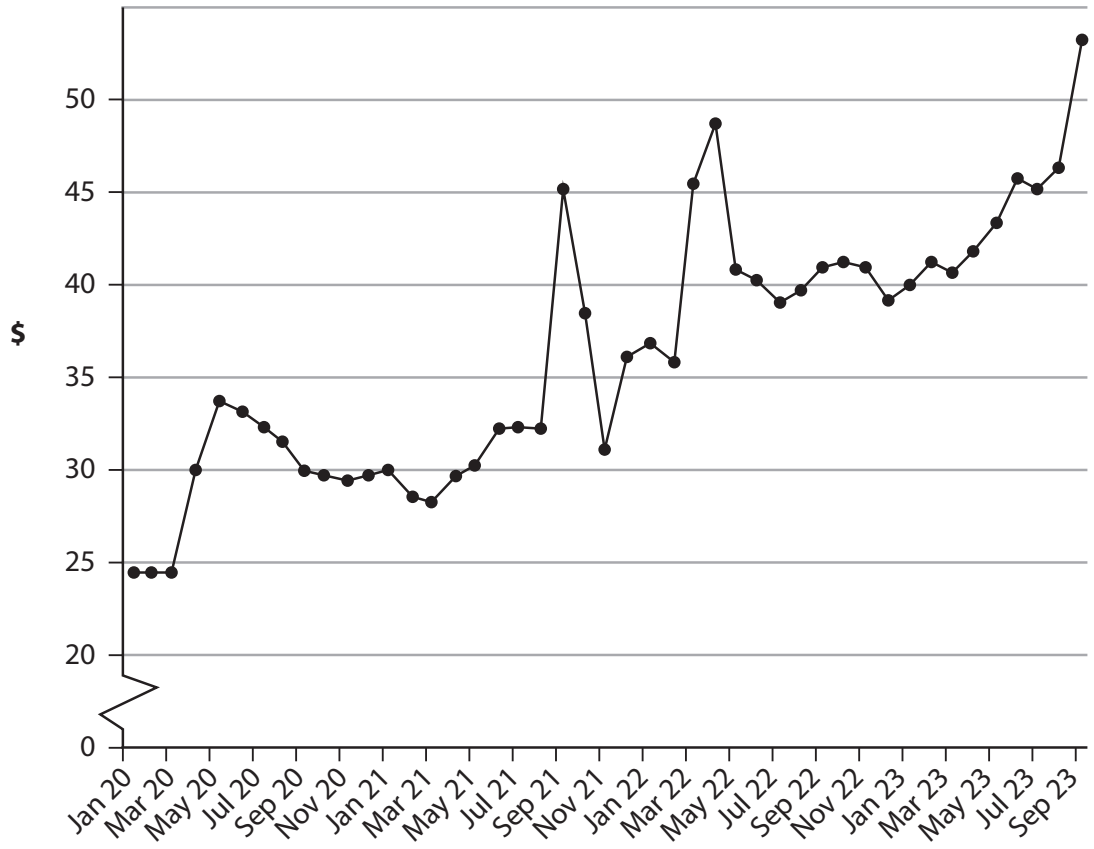
Illustrate your answer with an appropriate diagram.

(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.

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:

- 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.

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.

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.

(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)

(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 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.

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.

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.

Extract C Environmental impact of container ships

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

- 2% of global CO_2 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
- 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.

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 CO_2 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.

(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)

(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 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 2018 the Government of Uganda introduced an indirect tax on mobile internet usage. The aim was to raise tax revenue. Consumers had to pay a tax of 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.

(Total for Question 13 = 20 marks)

OR

14 In 2019, in Sweden, on average:

- households saved 16.5% of their incomes
- households borrowed 189% of their incomes
- a consumer made 349 debit card payments.

With reference to the information above and your own knowledge, evaluate the role of financial markets in an economy.

(Total for Question 14 = 20 marks)

SECTION D

Answer ONE question from this section.

Write your answer in the space provided.

EITHER

13 In January 2022 average energy prices increased by 28.6% in the eurozone area. In response:

- the German Government provided subsidies to energy producers
- the Spanish Government reduced indirect taxes on energy bills
- the French Government introduced a maximum price on energy bills.

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.

(Total for Question 13 = 20 marks)

OR

14 Fertiliser is used by farmers to increase the output of crops per acre of farmland. In 2021 farmers experienced a 400% increase in the cost of fertiliser. Between March 2021 and March 2022 the global food price index increased by 38%.

Evaluate the impact of the 400% increase in the cost of fertiliser on farmers and households.

Include one diagram to show the impact on farmers 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 According to a German insurance company, global natural disasters have become more common in recent years. For example, there was an increase in natural disasters from 400 in 1990 to 820 in 2019.

Evaluate the microeconomic effects of an increase in the number of natural disasters.

Include at least one appropriate diagram in your answer.

(Total for Question 13 = 20 marks)

OR

14 In 2022 General Motors received a $1 billion subsidy from the US Government to open two new electric vehicle factories in the USA. This was expected to generate 4 000 new jobs.

Evaluate the microeconomic effects of subsidies paid to electric vehicle manufacturers.

Include at least one appropriate diagram 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 The table shows predictions about population change produced by the United Nations for selected countries.

Country	2021	2100
United Arab Emirates	9.4 million	14.1 million
Bolivia	12.1 million	18.8 million
Philippines	113.9 million	180.2 million

(Source: adapted from https://ourworldindata.org/grapher/comparison-of-world-population-projections)

Evaluate possible factors that could cause a rightward shift of a country's production possibility frontier.

Include at least one relevant diagram in your answer.

(Total for Question 13 = 20 marks)

OR

14 The table shows the total number of aeroplane flights globally and their contribution to global carbon emissions in 2009 and 2019.

	2009	2019
Total number of aeroplane flights	25.9 million	38.9 million
Global carbon emissions	2.0%	2.5%

Evaluate the likely impact of imposing indirect taxes on aeroplane flights to reduce carbon emissions.

Include at least one relevant diagram 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 The table shows the global sales of electric vehicles in 2017 and 2023.

Year	Sales of electric vehicles
2017	1 180 000
2023	13 800 000

Evaluate the microeconomic benefits of this increase in demand for electric vehicles.

Illustrate your answer with a supply and demand diagram.

(Total for Question 13 = 20 marks)

OR

14 The Governments of the UK, Spain and Italy have introduced a tax on plastic packaging. This is charged on any plastic packaging with more than 30% that cannot be recycled.

The table shows the amount of tax charged in each country.

Country	Tax per tonne
UK	$250
Spain	$465
Italy	$465

Evaluate the microeconomic benefits of introducing a tax on plastic packaging.

Illustrate your answer with a supply and demand diagram.

(Total for Question 14 = 20 marks)

MARK SCHEMES

official mark schemes, in the same order as the questions

Section C

Question Number	Answer	Mark
12 (a)	**Knowledge 2** Up to 2 marks for defining 'equilibrium', e.g.: • Where the market is in balance **(1)** • Where supply and demand intersect/ meet/ situation where supply and demand are matched **(1)** • Leading to a stable price **(1)** • Determines the market price/ quantity sold **(1)** • Set by the free market/ price mechanism **(1)** • Price consumers willing to buy at is the same as the price producers are willing to sell at **(1)** • Leads to an efficient allocation of resources **(1)**	**(2)**

Question Number	Answer	Mark
12 (b)	**Knowledge 2 Application 2** Quantitative skills assessed: **QS9**: Interpret, apply and analyse information in written, graphical, tabular and numerical forms **Knowledge** Up to 2 marks for definitions: • Substitutes are goods with a positive cross elasticity of demand/ two goods that meet the same need **(1)** • Price elasticity of demand is the responsiveness of quantity demanded to a change in price/ or formula **(1)** • Elastic demand is where a change in price leads to a proportionally larger change in quantity demanded/ diagram showing elastic demand **(1)** **Application** Up to 2 mark for application to Extract A • Competing vegetable oils such as rapeseed, soybean and sunflower **OR** Crude oil is a substitute for palm oil (used in biodiesel) **(1)** • With so many substitutes an increase in the price of palm oil would see customers substitute to alternative- crude oil/ rapeseed/ soybean/ sunflower oil **(1)** meaning demand will be relatively elastic / cause the PED to increase **(1)**	**(4)**

Section B

Question	With reference to Figure 1, calculate the percentage change in the average world price of coffee beans from 1 July 2017 to 1 May 2019. You are advised to show your working. **Answer**	Mark
7(a)	**Application 2** **Quantitative skills assessed:** **QS9:** Interpret, apply and analyse information in written, graphical, tabular and numerical forms. **QS2:** Calculate, use and understand percentages, percentage changes and percentage point changes. Up to 2 marks for calculation: 1.57 – 2.31 ÷ 2.31 **(1)** -0.32 x 100 = -32% **(1)** **Award full marks for correct answer (-32, -32.03, -32.035, -32.0346) regardless of working.** **Award only 1 mark if they do not identify that it has decreased/is negative**	**(2)**

<table>
<tr><td>Question Number</td><td>The table shows the quantity of bottled water supplied and the quantity of bottled water demanded at different prices. An advertising campaign results in an increase in demand of 100 bottles of water at each price.

Using the data in the table, calculate the equilibrium price for bottled water after the advertising campaign. Show your workings. You may wish to use the last column in your calculation.</td><td>Mark</td></tr>
<tr><td>10</td><td>Knowledge 1, Application 3
Quantitative skills assessed:
QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms.

Knowledge
1 mark for defining what equilibrium is
Equilibrium is found where supply and demand intersect/ balance (1).
Quantity demanded and supplied are the same (1) (may be shown on a diagram)

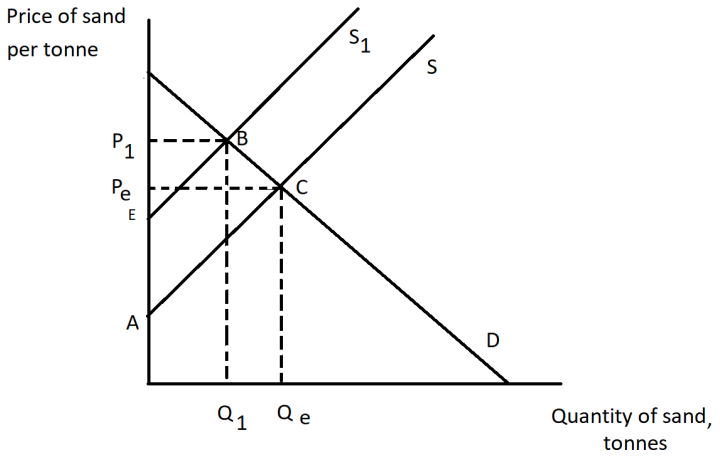
Application
Up to 2 marks for completing the final column. One for ¥12 and one for any other calculation:

<table>
<tr><th>Price of bottled water (yuan)</th><th>Original quantity demanded</th><th>Original quantity supplied</th><th>New quantity demanded</th></tr>
<tr><td>¥10</td><td>700</td><td>200</td><td>800</td></tr>
<tr><td>¥11</td><td>600</td><td>300</td><td>700</td></tr>
<tr><td>¥12</td><td>500</td><td>400</td><td>600</td></tr>
<tr><td>¥13</td><td>400</td><td>500</td><td>500</td></tr>
<tr><td>¥14</td><td>300</td><td>600</td><td>400</td></tr>
</table>

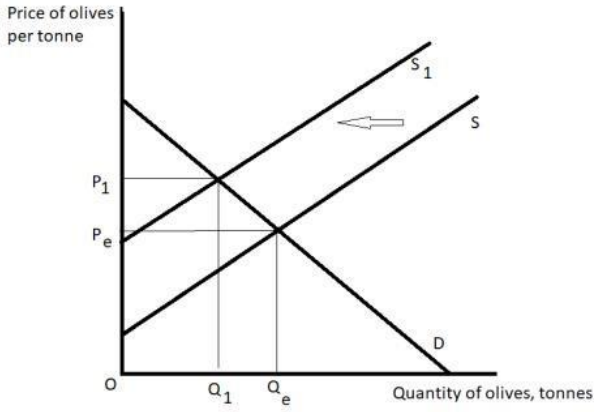
One mark for explaining where equilibrium occurs

Equilibrium occurs at a price of ¥13 (1) +1 K mark for implied understanding of equilibrium

NB: if correct answer (¥13) is given, award full marks regardless of working.
If currency (¥) is missing but 13 is given award 3.</td><td>(4)</td></tr>
</table>

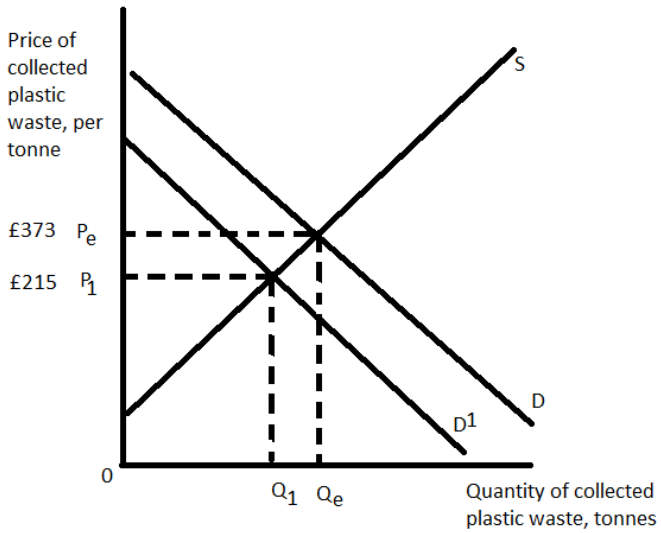
Question Number	In Ho Chi Minh City, Vietnam, the price of sand increased from VND510 000 to VND695 000 per cubic metre between April and May 2017. This was caused by reduced supply from Vietnamese mining companies. Explain the likely impact of this change on producer surplus in the market for sand. Illustrate your answer with a diagram.	Mark
11	**Knowledge 1, Application 1, Analysis 2** Quantitative skills assessed: **QS4**: Construct and interpret a range of standard graphical forms **Knowledge** 1 mark for defining producer surplus • Producer surplus the difference between the price of a good and the price willing to sell for / the gap between the equilibrium price and supply curve/profit generated by the firm **(1)** **Application** 1 mark for the following diagram, showing supply falling:  **Analysis** 1 mark for original producer surplus: • **ACP$_e$ (1)**. 1 mark for new producer surplus: • **EBP$_1$ (1)**. Award only 1 mark if candidate refers to a reduction in producer surplus.	**(4)**

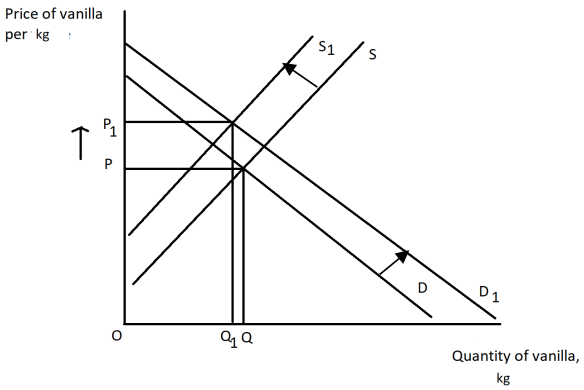
Section B

Question	Draw a diagram to illustrate the likely impact of this change on the world market for olives. **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 diagram • Original supply and demand curves with correctly labelled axis **(1)** **Application** Up to 3 marks for the following information included on diagram: • Original equilibrium price and quantity **(1)** • Supply curve shifted to the left **(1)** • New equilibrium price and quantity following the correct shift in supply **(1)**  	**(4)**

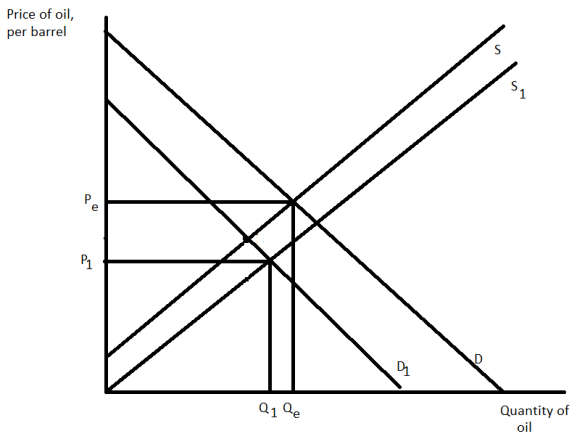
Question Number	With reference to Figure 1 and Extract A, analyse **one** reason why the price of cocoa beans 'fell below $2 000 per tonne' (Extract A, line 8) in April 2017. Illustrate your answer with a supply and demand diagram.	Mark
12 (c)	**Knowledge 2, Application 2, Analysis 2** Quantitative skills 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)**. • Correct shift in supply **(1)**. **Analysis** 1 marks for development of how the reason leads to lower prices, e.g.: • Cote d'Ivoire production rising meaning that at any given price supply is higher **(1)**. • The trees maturing means the growers are able to supply more cocoa at a lower cost **(1)**. • Good harvests lead to excess supply at original price, so causing downward pressure on price **(1)**. 1 mark for using diagram to show impact of the change in supply on equilibrium price: • New equilibrium showing lower price **(1)** **Application** Up to 2 marks: 1 mark for interpreting data from Figure 1: • showing the price above $2 000 before April 2017 e.g. August 2016 $3 000 **(1)** Or may be shown in diagram Up to 2 marks for using data from Extract A: • Cote d'Ivoire production rose from 1.45m tonnes to 1.93m tonnes /a good harvest/ stocks 27.3% higher/ new trees maturing **(1+1)**.	**(6)**

Question Number	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. Answer	Mark
12 (c)	**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 and tabular forms. **Knowledge** 1 mark for diagram showing original supply, demand and equilibrium **(1)**. 1 mark for identification of one reason from Extract A: • rising incomes / demand for Australian lamb rising 28%/ demand for lamb has risen in the USA/ advertising **(1)**. **Application** Up to 2 marks: 1 mark for the correct shift of demand on the diagram. 1 mark for interpreting data from Figure 2: • showing any change in price from 2017 e.g. from $5.00 in Jan 2017 to $5.80 in Dec 2017 **(1)**. NB accept reference to data from 2016 compared to 2017. **Analysis** Award 1 mark for development of how one reason leads to higher prices, e.g.: • Rising incomes mean they may eat more meat and therefore buy more lamb/ with lamb being a normal good an increase in global incomes will increase demand for lamb **(1).** • Demand for lamb rising in the USA means more competition for lamb which pushes up the price **(1)**. • The advertising campaign will generate more awareness/ interest in lamb pushing up demand **(1).** • The increase in demand sees an extension of supply **(1).** • PLUS 1 mark for diagram showing final equilibrium with higher price **(1)**.	

Question	Analyse **one** reason why 'the price of plastic waste material fell by more than 40%.' (Extract A, line 2). Illustrate your answer with a supply and demand diagram. Answer	Mark
12 (c)	**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)** • leftward shift in demand **(1)** **Analysis** Up to 2 marks for development of how reason(s) leads to lower prices, e.g.: • There are less companies willing to buy the material **(1)** • Meaning sellers have to accept a lower price for the goods **(1)** • There will be a contraction in supply **(1)** • Final equilibrium showing lower price **(1)** **Application** Up to 2 marks for reference to the data from Extract A: • The price falls from £373 to £215 per tonne **(1)** • With China banning the import of collected waste plastic **(1)** • There are now dramatically fewer buyers for the plastic waste **(1)**  	**(6)**

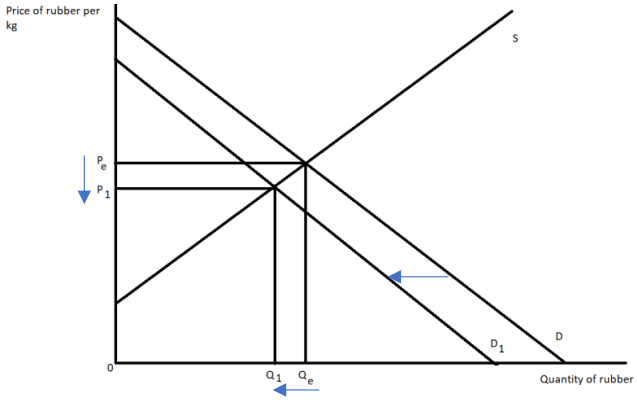
Question	Analyse why the price of vanilla increased significantly between 2014 and 2018. Refer to Figure 2 and Extract A in your answer. Illustrate your answer with a supply and demand diagram. **Answer**	Mark
12 (c)	**Knowledge 2, Application 2, Analysis 2** Quantitative skills assessed: **QS4**: Construct 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 showing higher price **(1)** **Analysis** Up to 2 marks for identification of one reason linked to demand and one linked to supply which leads to higher prices, e.g.: • 2017 cyclone destroyed crop and reduced supply **(1)** • In recent years consumers switched to natural vanilla/ Consumers switched away from vanilla substitutes, e.g. vanillan/ • Rapid growth in demand for ice cream, sweets, chocolate and in cosmetic products which use vanilla **(1)** **Application** 1 mark for reference to Figure 2 • Price rises from $140 per kg to $600 per kg/ by $460/ by 328.6% **(1)** Up to 2 marks for diagram: • Leftwards shift in supply **(1)** • Rightwards shift in demand **(1)**  	**(6)**

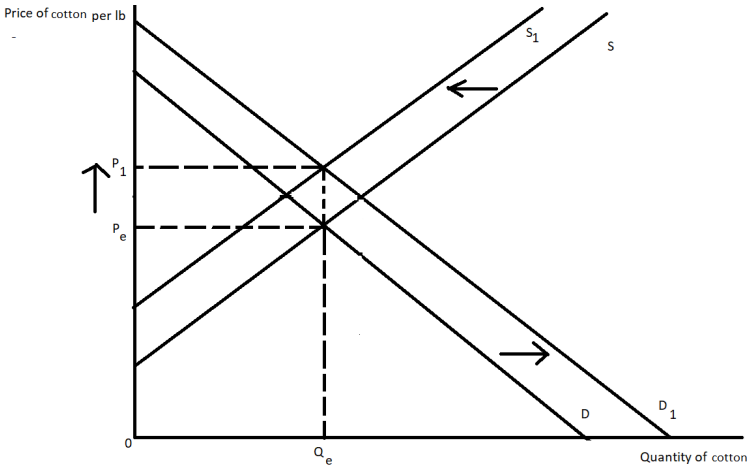
Question Number	Answer	Mark
12 (c)	**Knowledge 2, Application 2, Analysis 2** Quantitative skills assessed: **QS4**: Construct and interpret a range of standard graphical forms **QS9**: Interpret, apply and analyse information in written, graphical, tabular and numerical forms **Knowledge** Up to 2 marks for the diagram showing: • Original supply and demand curves and equilibrium **(1)** • Where a candidate correctly shifts supply to the right **or** demand curve to the left **(1)** **Application** 1 marks for one demand factor: Causing leftward shift in the demand curve: • Price of competing oils/ soya/ rapeseed/ sunflower have fallen **(1)** • Lower crude oil prices, substitute for palm oil/ biodiesel **(1)** 1 marks for one supply factor: Causing rightward shift in the supply curve: • More produced/ abundant supply **(1)** **Analysis** Up to 2 marks for development of how reason(s) leads to lower prices, e.g.: • Where a candidate has shifted the second curve correctly e.g. rightwards shift in supply **AND** leftwards shift in demand **(1)**. • Final equilibrium following shift in both supply and demand **(1)**	**(6)**

Question Number	Answer	Mark
12 (c)	**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, and demand and equilibrium **(1)** • Final equilibrium showing lower price **(1)** **Analysis** 1 mark for demand factor e.g.: • Governments restricted the movement of people • Offices and factories closed • Significant reduction in production • Less transport and energy needed **(1)** 1 mark for supply factor e.g.: • Saudi Arabia and Russia increased supply of oil • Failure to agree to limit production **(1)** **Application**  1 mark for reference to Figure 1 • Price decreased from $68 per barrel to $32 per barrel/by $36/by 53%	

	Up to 2 marks for diagram: • Rightwards shift in supply **(1)** • Leftwards shift in demand **(1)**	**(6)**

Question Number	With reference to Figure 1 and Extract A, analyse **two** reasons why the world price of sugar fell between August 2017 and August 2018. Illustrate your answer with a supply and demand diagram. Answer	Mark
12(c)	**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 showing lower price **(1)** **Analysis** Up to 2 marks for any two reasons below: Supply factors • Favourable weather (1) • Good harvests (1) • Indian Government subsidising sugar production (1) • India/Thailand had record levels of production/helping to increase global production to 11% higher than in 2017 (1) Demand factors • Consumption of sugar has fallen because of increasing health concerns (1) • Competition from substitutes such as artificial sweeteners (1) • In the USA/Europe/China/Australia sugar consumption has fallen (1) **NB accept two demand or two supply factors or one of each** **Application** 1 mark for reference to Figure 1 • Price decreased by $0.08/25% **(1)** Up to 2 marks for diagram: • Rightwards shift in supply **(1)** • Leftwards shift in demand **(1)**	

Question	With reference to Figure 1 and Extract A, analyse why 'between January and May 2020 the price of rubber fell from $1.67 to $1.35 per kg'. 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 showing lower price **(1)** **Analysis** Up to 2 marks for analysis with linked development. The price of rubber fell because e.g.: • Decreased demand for rubber tyres **(1)** • In Europe/North America/South America/as the car usage fell **(1)** • Temporary closures of car factories **(1)** • Less demand for tyres as less cars are made **(1)** • Large impact as tyre production uses 75% of the world's natural rubber **(1)** • Cars and tyres are complementary goods **(1)** when the demand for cars/tyres fell the demand for tyres/rubber falls also **(1)** **Application** 1 mark for reference to Figure 1/ Extract A: • Price decreased by 19.2%/by $0.32 per kg **(1)** Up to 2 marks for diagram: • Leftwards shift in demand **(1)** • Reduction in equilibrium quantity **(1)**  	**(6)**

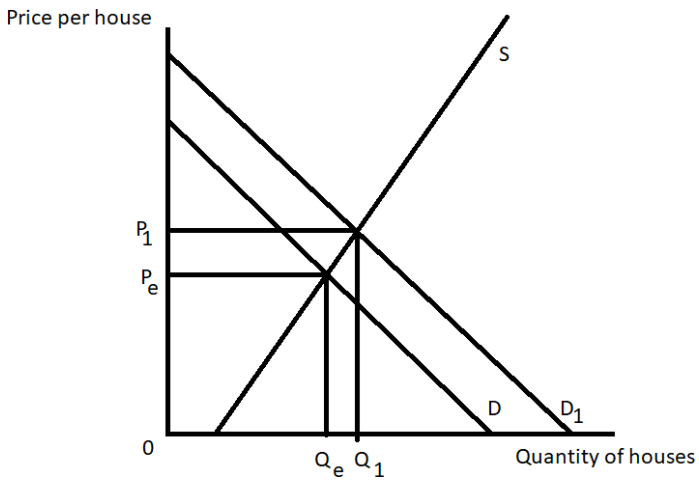
Question	With reference to Figure 1 and Extract A, analyse **two** reasons why between 1st April 2020 and 1st January 2021 the world price of cotton increased. Illustrate your answer with a supply and demand diagram. **Answer**	Mark
12 (c)	**Knowledge 2, Application 2, Analysis 2** Quantitative skills 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 showing higher equilibrium price and change in quantity **(1)** **Analysis** Up to 1 mark for analysis linked to demand factor e.g.: • Increased demand for cotton as more demand for masks/bedsheets/surgical gowns/for healthcare **(1)** Up to 1 mark for analysis linked to supply factor e.g.: • Pakistan crop decreased/decrease in amount of cotton produced/high temperatures in Pakistan **(1)** **Application** 1 mark for application to Figure 1 • Price increased from \$0.54 per lb to \$0.80 per lb between 1 April 2020 and 1 January 2021 Up to 2 marks for diagram: • Rightwards shift in demand **(1)** • Leftwards shift in supply **(1)**  	
	NB: Quantity may rise or fall dependent on size of shifts in S and D	**(6)**

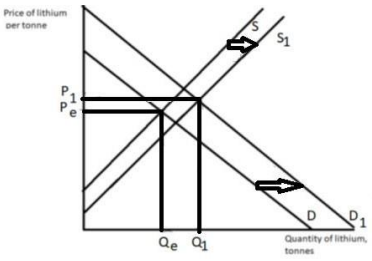
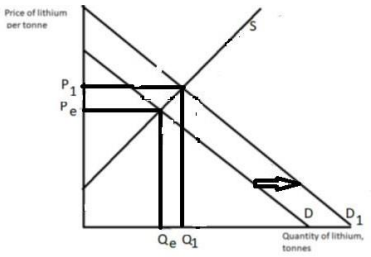
Question	With reference to Figure 1 and Extract A, analyse **two** reasons why 'the world price of copper increased significantly' between May and December 2020. Illustrate your answer with a supply and demand diagram. **Answer**	Mark
12 (c)	**Knowledge 2, Application 2, Analysis 2** Quantitative skills 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 with correctly labelled axis **(1)** • Final equilibrium showing higher price **(1)** **Analysis** Up to 2 marks for analysis linked to demand taken from Extract A e.g.: • Speculators started to buy copper/expected global rate of economic growth to recover **(1)** • Chinese Government investing in infrastructure **(1)** • Output of electric vehicles increased therefore demand for copper rose **(1)** **Application** 1 mark for application to Figure 1 focused on May and December 2020 • Price increases from \$5 100 (accept \$5 000 to \$5 200) in May 2020 to \$7 100 (accept \$7 000 to \$7 200)/ increased \$2 000 (accept \$1 800 to \$2 200)/ 39% increase in price between May and December (accept 35%-45%) **(1)** 1 mark for diagram: • Rightwards shift in demand **(1) (accept more than one shift of demand to the right)**	

Question	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. **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, e.g.: • Plumbing firms will experience increased costs **(1K)** so supply will shift left/decrease **(1An)** • Producer surplus will decrease **(1K)** as price rises and quantity falls **(1An)** • Plumbing firms may substitute to cheaper alternatives **(1K)** which may reduce the quality of the plumber's job **(1An)** • Plumbing firms may experience reduced profits **(1K)** as a result of higher costs if they use copper piping **(1An)** • Plumbers may have to increase their prices **(1K)** resulting in a decrease in demand **(1An)** **Application** Up to 2 marks for reference to Extract A/data • 44% increase in price of copper/price increase from below $5 100 to $7 100 **(1)** • Most plumbers prefer to use copper pipes/costs of copper pipes will rise/price of copper pipes increase significantly in the future **(1)** • Reward up to two marks for relevant diagram **Evaluation** Up to 2 marks for evaluative comments, e.g.: • Magnitude of costs- a 44% copper price increase is substantial and could increase costs considerably **(1+1)** • Depends on how important copper pipes are as a proportion of total costs **(1+1)** • Depends on how much the copper pipe manufacturer absorbs (price elastic demand)/passes on the increase in costs (price inelastic demand) **(1+1)**	**(8)**

Question	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. **Answer**	Mark
12 (c)	**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, equilibrium price and quantity **(1)** • Final equilibrium with both curves shifted correctly showing higher price **(1)** **Analysis** 1 mark for analysis linked to supply e.g.: • Costs of steel and copper increased **(1)** 1 mark for analysis linked to demand e.g.: • Global health crisis led to increased demand for semiconductors used in production of laptops/tablets/smartphones **(1)** **Application** 2 marks for diagram: • Rightwards shift in demand **(1)** • Leftwards shift in supply **(1)**	

Question	With reference to Extract B and Figure 1, examine **two** likely effects of excess demand for semiconductors on car manufacturers. **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, Analysis and Application** 1 mark for definition/understanding of excess demand • Demand is greater than supply at the current price Up to 2 marks for reference to Extract A, Up to 2 marks for identifying two impacts and up to 2 marks for linked explanations, e.g.: • Car manufacturers waiting for semiconductors **(1AP)** so unable to complete customer orders **(1K)** leading to reputational damage as customers have to wait longer between ordering and receiving their cars **(1AN)** • Volkswagen produced 100 000 fewer cars/GM shut down production/Japan's car production decreased 19% **(1AP)** with less cars supplied **(1K)** it leads to lower revenue/proft **(1AN)** • Car manufacturers removed features requiring semiconductors **(1AP)** in order to be able to reduce the need for semiconductors **(1K)** which may disappoint customers as new cars might not have the features they expect leading to reputational damage **(1AN)** • Shortage of cars led to increased price of new cars/people switched to used cars market where prices doubled **(1AP)** as car showrooms struggled to purchase new and used cars **(1K)** costs will increase and profits fall **(1AN)** • Fall in revenue for car manufacturers in China estimated at $25.5 bn/Europe $13.4 bn/South Asia $9.3 bn/ Japan/South Korea $7.3 bn/ North America $5.2 bn **(1AP)** as quantity of sales of new cars sold falls **(1K)** car manufacturers are likely to employ fewer employees **(1AN)** Award 1 mark for accurate excess demand diagram (1AN) **Evaluation** Up to 2 marks for evaluative comments (2+0 or 1+1), e.g.: • Magnitude of impact- widespread affecting Volkswagen, GM, Japanese manufacturers/revenues reduced $100bn **(1+1)**	**(8)**

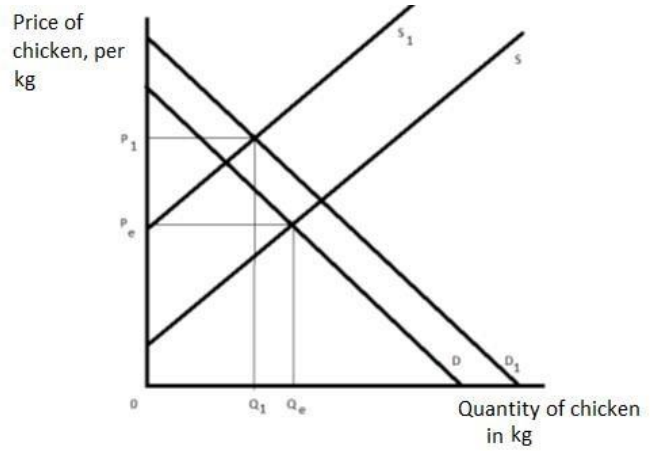
Question	With reference to paragraph 1 of Extract A, analyse **two** reasons why house prices increased between March 2020 and March 2021. Illustrate your answer with a supply and demand diagram. **Answer**	Mark
12 (b)	**Knowledge 2, Application 2, Analysis 2** Quantitative skills assessed: **QS4**: 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)**  	**(6)**

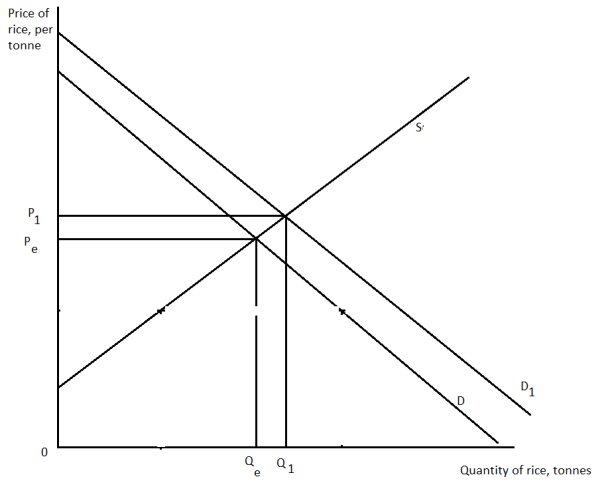
Question	With reference to Figure 1 and Extract B, analyse **two** reasons why the 'world price of lithium increased by 191%' (Extract B, line 2). Illustrate your answer with a supply and demand diagram **Answer**	Mark
12 (c)	**Knowledge 2, Application 2, Analysis 2** Quantitative skills assessed: **QS4:** 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 demand, supply and equilibrium price and quantity **(1)** • New demand, supply and higher equilibrium price and quantity **(1)** **Analysis** Up to 2 marks for analysis linked to Extract B e.g.: • Demand increased by significantly more than supply **/** Supply is relatively price inelastic **(1)** • With rising gas and oil prices many consumers are switching from traditional fuel cars to electric-powered cars. These require lithium in the batteries **/** In China electric vehicle sales increased by 157.5% in 2021 **/** Globally electric vehicle sales increased by 108%/to 6.75m in 2021 **(1)** • Sales of Smartphones, which use lithium batteries, also increased by 11.4% in 2021/to 1.5bn **(1)** **Application** 2 marks for diagram **OR** 1 mark for diagram and 1 mark for reference to Figure 1: • Shift demand to the right **(1)** • Shift supply to the right **(1)** • Reference to Figure 1- e.g. October 2021 price was 180 000 yuan and in October 2022 510 000 yuan/ an increase of about 330 000 yuan **(1)**  4 mark diagram  3 mark diagram	**(6)**

Question	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. **Answer**	Mark
12(d)	**Knowledge 2, Application 2, Analysis 2, Evaluation 2** Quantitative skills assessed: **QS9**: Interpret, apply and analyse information in written, graphical, tabular and numerical forms **Knowledge and Analysis** Up to 2 marks for identifying two effects (K) and up to 2 marks for linked explanation (AN), e.g.: • New smartphone manufacturers lose revenue **(1K)** as consumers substitute to refurbished smartphones **(1AN)** • New smartphone manufacturers achieve lower profit/producer surplus **(1K)** as the demand for new smartphones decreases **(1AN)** • Manufacturers of refurbished smartphones gain revenue **(1K)** as consumers look to save money by purchasing the cheaper alternative **(1AN)** • Manufacturers of refurbished smartphones achieve higher profit/producer surplus **(1K)** they purchase the phones and sell them at a higher price **(1AN)** • Manufacturers of new smartphones have the incentive to encourage customers to return their smartphones after use **(1K)** and then refurbish these to add to the firms total revenue **(1AN)** **Application** Up to 2 marks for reference to Extract A, e.g.: • The market for smartphones that have been refurbished is forecast to be worth $65 billion by 2024 **(1)** • Typically, a consumer can sell a one-year-old smartphone for 50% of its original price **(1)** • The manufacturer can sell the same refurbished smartphone for 80% of its original price **(1)** • Unwanted smartphones in developed countries are desired in emerging countries **(1)** **Evaluation** Up to 2 marks for evaluative comments (2+0 or 1+1), e.g.: • We do not know how this value compares to revenues generated by producing new smartphones **(1+1)** • There may be other external costs involved in refurbishment that manufacturers do not take account of **(1+1)** • The consumers may find reliability issues/inferior product compared to new models **(1+1)** • Profits may be limited by production requiring a large amount of labour **(1+1)**	**(8)**

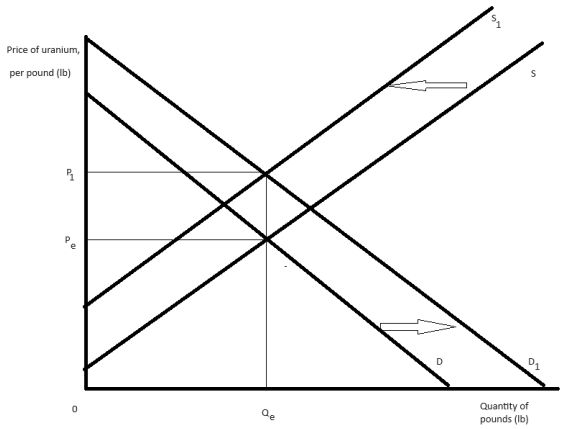
Question	With reference to Figure 1 and Extract A, analyse **one** demand factor *and* **one** supply factor that caused the price of fertiliser to increase between January 2021 and April 2022. Illustrate your answer with a supply and demand diagram. Answer	Mark
12 (c)	**Knowledge 2, Application 2, Analysis 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 price and quantity having correctly shifted both supply **and** demand **(1)** **Analysis** 1 mark for demand factor e.g.: • Demand for fertiliser increased by 6.3%/ • Governments paying subsidies to farmers during the global health crisis/ • Higher crop prices in 2021 provided an incentive for farmers to increase the quantity of crops that they grew **(1)** 1 mark for supply factor e.g.: • Poor weather caused some factories that manufacture fertiliser to shut down/ • 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 **(1)** **Application** Up to 2 marks for diagram or reference to Figure 2.: • Shift demand to the right **(1)** • Shift supply to the left **(1)** • January 2021 price per tonne was just above $400 increasing to approximately $950 in April 2022 **(1)**	

Question	Reference to Extract A, analyse **two** reasons why sales of electric vehicles in China increased. Illustrate your answer with a supply and demand diagram. Answer	Mark
7 (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 price and quantity having correctly shifted demand **(1)** **Analysis** Up to two marks for reasons from Extract A, e.g.: • Measures to reduce CO_2 emissions in order to meet its climate change goals by 2030 **(1)** • Increasing the number of charging points **(1)** • Raising the tax on non-electric vehicles **(1)** • The global increase in the price of fuel has also led to an increase in demand for electric vehicles **(1)** **Application** 1 mark for correct shift of demand on diagram: • Shift demand to the right **(1)** 1 mark for reference to change in sales: • Between 2021 and 2022 the sales of electric vehicles in China increased by 83% to 5.92 million **(1)**	

Question	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. **Answer**	Mark
12 (c)	**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 price and quantity having shifted both supply and demand **(1)** **Analysis** 1 mark for condition of demand from Extract A • chicken became a more popular choice/ it is considered to be a healthier option than other meats **(1)** 1 mark for condition of supply from Extract A • 20% increase in the cost of chicken feed/ outbreak of bird flu/ 140 million chickens globally could not be sold for consumption **(1)** **Application** Up to 2 marks for diagram or reference to Figure 1.: • Shift demand to the right **(1)** • Shift supply to the left **(1)** • **May 2020** price \$1.50 per kg to approximately \$3.70 in **May 2022 (1)**  	**(6)**

Question	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. **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 higher equilibrium price and quantity having only shifted demand **(1)** **Analysis** Up to 2 marks for reasons from Extract A • Rice consumption in Africa and Asia is growing rapidly **(1)** • As populations grow/In 2022 the population grew by 2.45% in Africa and 0.83% in Asia **(1)** • Incomes rose/ In 2022 the average economic growth rate was 4% in Asia and 3.85% in Africa **(1)** **Application** 1 mark for diagram and 1 mark for reference to Figure 1.: • Shift demand curve to the right **(1)** • Figure 1- price index rises from 108.4 to 129.7 between July 2022 and July 2023/ increased by over 19.6%/ 21.3 increase in the index **(1)**  	**(6)**

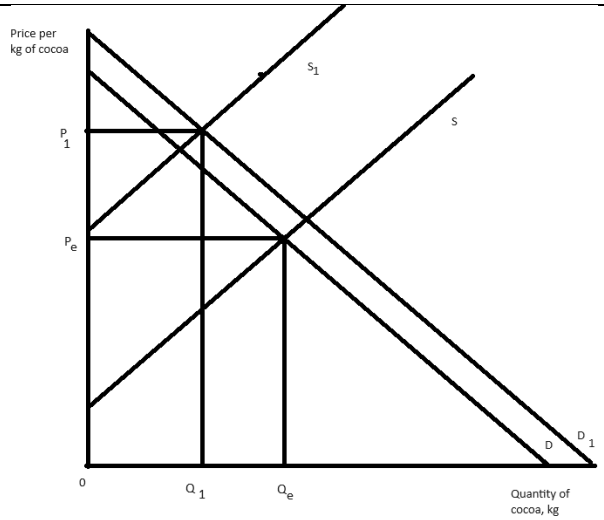
Question	With reference to Figure 1 and Extract A, analyse **one** demand factor and **one** supply factor that caused the price of uranium to more than double between January 2020 and September 2023. Illustrate your answer with a supply and demand diagram. **Answer**	**Mark**
12 (b)	**Knowledge 2, Application 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)**	



NB if two separate diagrams award maximum of 5/6 marks
NB- price must rise but quantity may rise, fall or stay the same

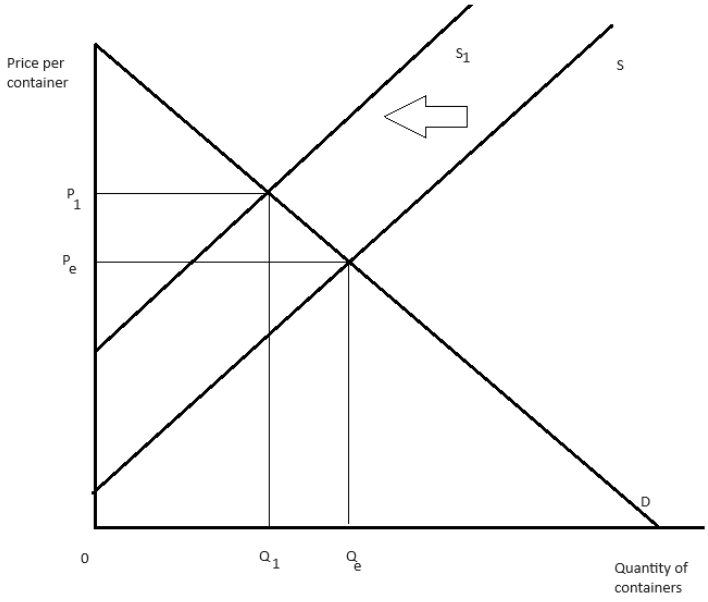
(6)

Question	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. 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 having shifted both demand and supply **(1)** **Analysis** 1 mark for **one** supply factor from Extract A: • Côte d'Ivoire 36.3% decrease in production / • Caused by swollen shoot disease on cocoa farms / • Flooding **(1)** 1 mark for **one** demand factor from Extract A: • 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 **(1)** **Application** Up to 2 marks for diagram or for reference to Figure 1.: • Shift supply to the left **(1)** • Shift demand to the right **(1)** • Figure 1- price rises from approximately $2.40 to $4.04 per kg between November 2022 and November 2023 **(1)**	



Supply and demand shift size may vary

(6)

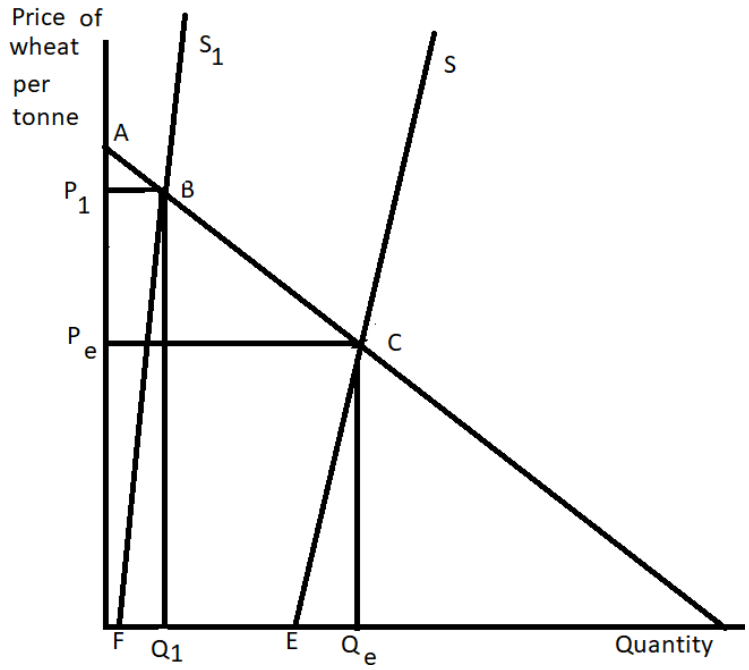
Question	With reference to Figure 1 and Extract A, analyse **two** factors that caused the average world price of transporting goods in shipping containers to rise rapidly. Illustrate your answer with a supply and demand diagram. **Answer**	Mark
12 (b)	**Knowledge 2, Application 2, Analysis 2** Quantitative 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 having shifted only the supply curve **(1)** **Analysis** Up to 2 marks for 2 supply factors from Extract A: • Container ships diverted to an alternative route/ Added 6 550km/ 10-15 days/ Additional cost of fuel £1million **(1)** • Higher wages of workers **(1)** • Increased interest rate/cost of borrowing **(1)** **Application** 1 mark for diagram: • Shift supply curve to the left **(1)** 1 mark for reference to Figure 1: • Figure 1- price rises from $2 172 to $3 411 per shipping container between March 2023 and March 2024/ increased by 57% **(1)**  	**(6)**

	• Plumbing firms prefer copper pipes so it is very likely they will avoid substituting to alternatives **(1+1)** • Depends on the price elasticity of demand for plumbing services, if inelastic then revenue or profit may fall **(1+1)** • Plumbers may have stockpiled copper pipes so will not experience the rise in costs **(1+1)**	

	• Depends on how important semiconductors are in the production of cars as to how much of a delay there is **(1+1)** • Depends on whether car manufacturers have stockpile of semiconductors which would enable them to increase production **(1+1)** • Chinese manufacturers have suffered the largest loss in revenue suggesting semiconductor shortages affected some more severely **(1+1)** • Increased semiconductor production will help resolve issues of excess demand **(1+1)**	

Question	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. **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 • US Government increased subsidy from $0 between 2000-20 to $52 bn in 2021 • To reduce the reliance of US on imports of semiconductors- had increased 63% to 88% • Increase the number of US semiconductor factories by at least 7 • Helps expand production capacity and reduce risk of car manufacturers having to stop production • The subsidy will make US production more profitable/able to compete with Asian producers who have lower costs • Subsidy- decreases costs of production • Increases supply S to S+Sub • Decreases price P_E to P_1 • Quantity of semiconductors increase/increases quantity Q_E to Q_1 • Increases government spending- $ABCP_1$ • Reference to incidence of the subsidy (consumer/producer) • Consumer surplus increases FJP_E to FCP_1 • Producer surplus increases • Helps improve semiconductor supply enabling car companies to increase production • Will be cheaper to produce products that use semiconductors • Increases employment in semiconductor manufacturing in the USA • Increased production generates external costs- cancer causing and water usage

Question	Evaluate the impact of the 400% increase in the cost of fertiliser on farmers and households. Include one diagram to show the impact on farmers in your answer. **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** 400% increase in costs Farmers • Increased costs of production • Supply shifts left, S to S_1 • Demand contracts • Price increases, P_e to P_1 • Quantity decreases, Q_e to Q_1 • Decreased consumer surplus, ACP_e to ABP_1 • Decreased producer surplus • Some may exit the market as profits fall • If less fertiliser is used, productivity may fall leading to a fall in income for farmers



Households

- 38% increase in global food price index
- Pay more in farm shops/for food in supermarkets
- Consumer surplus falls
- Food less affordable
- Demand for food very price inelastic meaning that consumers spend a higher proportion of their income on food
- Less income left to spend on other (non-food) goods and services
- Decrease demand for other goods e.g. electronics and entertainment

NB Maximum Level 3 if farmers or households omitted

NB Maximum Level 3 if no relevant diagram drawn

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.

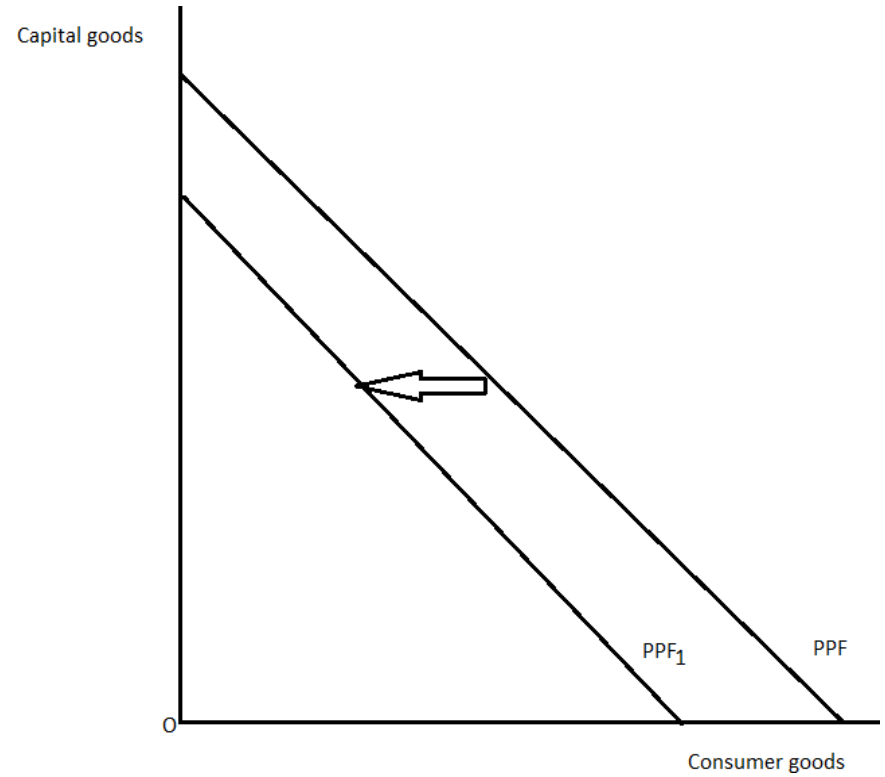
	Evaluation (8 marks) – indicative content • Magnitude of the increase in fertiliser costs is significant so the impact on costs is large • The magnitude of the increase in the global food price index is much smaller than the increase in the cost of fertiliser/represents significant costs to households • Depends on the proportion of total production costs that are accounted for by fertiliser • The impact will depend on how long the prices remain high • Organic farmers who do not use fertiliser will benefit as their competitors producing non-organic good will suffer • Depends on how other costs change • Use of fertiliser may fall- reducing external costs of production- impact on wildlife • Farmers may absorb some of the increases in costs and not pass on price increases • Price elasticity of demand- if inelastic there will be only small changes in quantity • Impact greatest on low-income households as food costs will make up greater proportion of income • Government policy can alleviate the issue- accept specific examples

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.

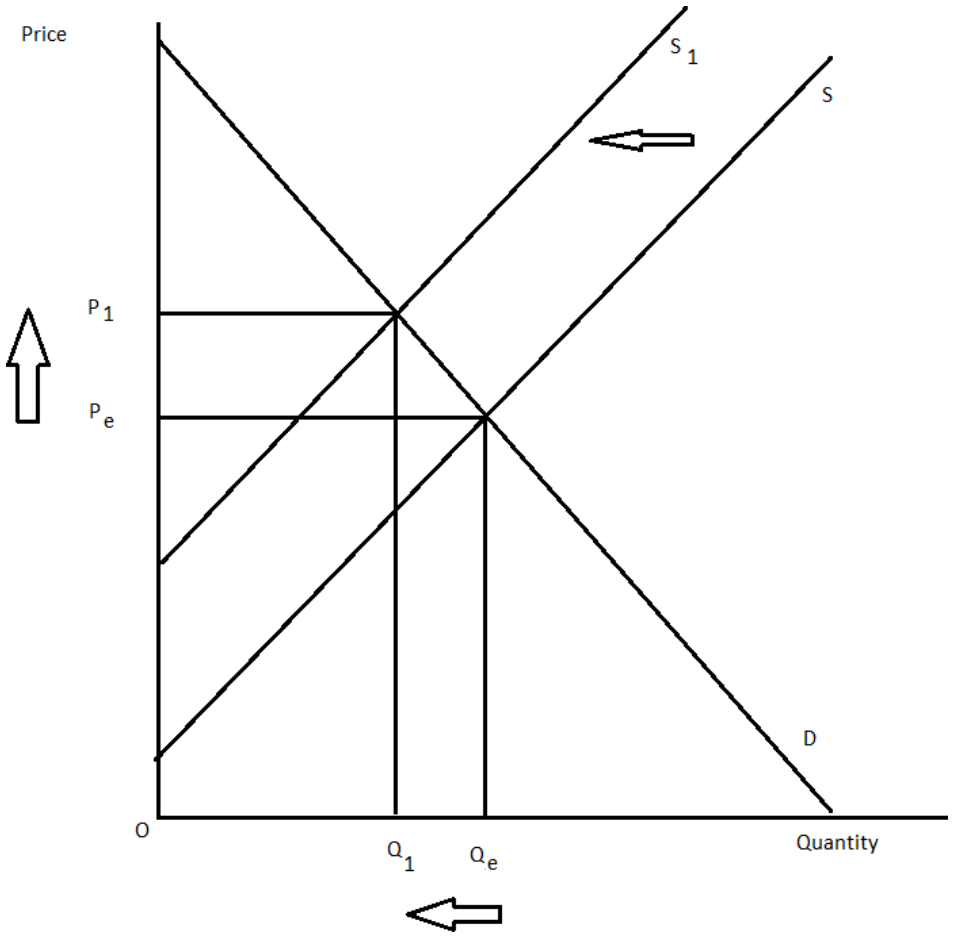
Pearson Education Limited. Registered company number 872828
with its registered office at 80 Strand, London, WC2R 0RL, United Kingdom

Section D

Question	According to a German insurance company, global natural disasters have become more common in recent years. For example, there was an increase in natural disasters from 400 in 1990 to 820 in 2019. Evaluate the microeconomic effects of an increase in the number of natural disasters. Include at least one appropriate diagram in your answer. 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** • Natural disasters include earthquakes, flooding, monsoons, tornados, wildfires etc. • Increased number of natural disasters from 400 to 820 between 1990 and 2019 • Production possibility frontiers in countries affected will be shifted inwards • Reducing productive potential of these countries



- Destruction of schools, hospitals, and power stations will reduce productive potential
- Supply in markets affected will be reduced- e.g. if crops are destroyed in a flood



- This will result in an increase in prices for these items as they are more scarce
- This will result in a reduction in quantity as less can be produced
- Some sectors will see increased demand and output-e.g. tents, blankets etc.
- Increased costs to insurance companies
- Financial loss to individuals if insurance pay-outs below value of items e.g. house rebuild costs

NB Award maximum of Level 3 if no diagram is included

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 • There is no indication of the magnitude of the natural disasters- to determine the impact • Size of the natural disaster will determine the size of reductions in supply or movement inwards of PPF e.g., more damaging earthquakes with epicentre in populous areas more damaging • The Government is likely to step in to support areas affected- reducing impact on insurance markets and individuals • Subsidies paid to support reconstruction, increase supply, lowering price and increasing quantity • International support in terms of people and resources may reduce issues • Consideration of difference between short-run and long-run microeconomic effects • In the long-run resilience to natural disasters may improve- e.g., flood defences	
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.

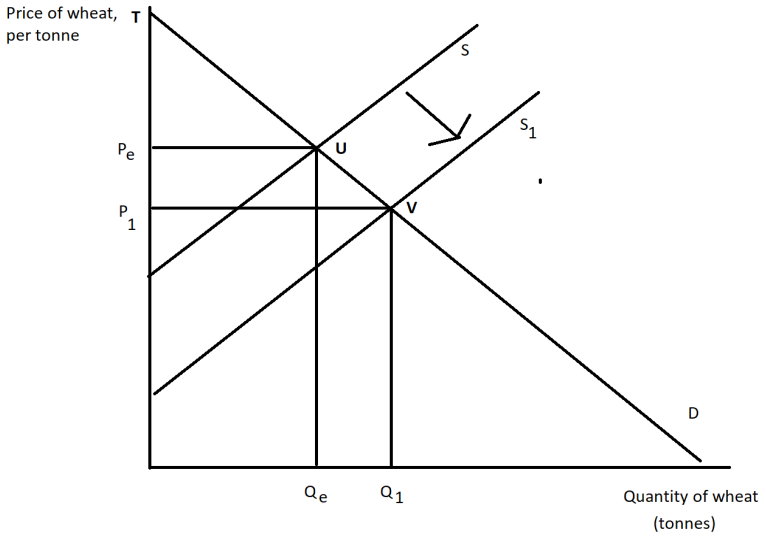
Question	In 2022 General Motors received a $1 billion subsidy from the US Government to open two new electric vehicle factories in the USA. This was expected to generate 4 000 new jobs. Evaluate the microeconomic effects of subsidies paid to electric vehicle manufacturers. Include at least one appropriate diagram in your answer. **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** • Subsidy- cash grant paid to encourage production • Reduces electric vehicle manufacturers' costs of production • Generates 4 000 new jobs in the USA • The cost per job created is $250 000

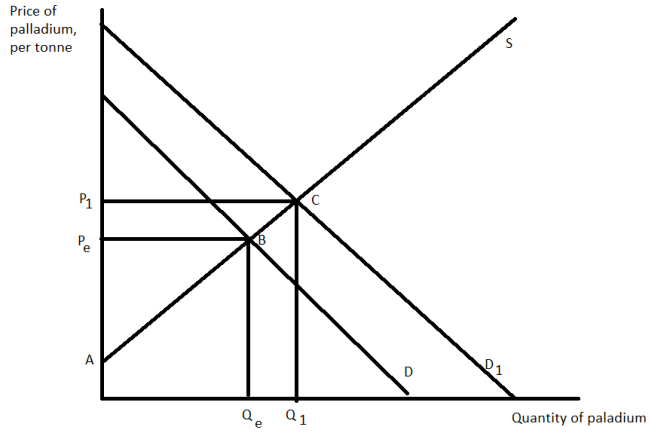
Question	Quantitative skills assessed	Answer	Mark
1	–	B	**(1)**
2	–	A	**(1)**
3	–	D	**(1)**
4	**QS9**: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	C	**(1)**
5	**QS8**: Make calculations of elasticity and interpret the result	C	**(1)**
6	**QS8**: Make calculations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

4	–	**The only correct answer is C** ***A*** *is not correct because if consumers were good at computation they would calculate the benefits of switching and be more likely to switch* ***B*** *is not correct because if they maximised utility they would switch to the cheaper deal* ***D*** *is not correct because if consumers feel valued by alternative providers they would switch to them*	**(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 this area represents part of the fall in total revenue for firms* ***B*** *is not correct because total revenue falls by the area* P_eUVP_1 *and* VUQ_eQ_1 ***C*** *is not correct because this area shows producer surplus and not consumer surplus*	**(1)**
6	**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 represents the total government spending* ***C*** *is not correct because this is the total revenue earned by firms from customers* ***D*** *is not correct because this is the total revenue earned by firms from both customers and the government subsidy*	**(1)**

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)**

Question	Explain the likely impact of this fall in price on consumer surplus in the market for wheat. Illustrate your answer with a diagram. **Answer**	Mark
11	**Knowledge 1, Application 1, Analysis 2** Quantitative skills assessed: **QS4**: Construct and interpret a range of standard graphical forms **Knowledge** 1 mark for defining consumer surplus • Consumer surplus is the difference between the price the consumers are willing to pay and the market price/gap between the equilibrium price and the demand line **(1)** **Application** 1 mark for the following diagram, showing the correct shift in supply  **Analysis** 1 mark for original consumer surplus • Consumer surplus is originally P_eTU **(1)** 1 mark for new consumer surplus or increase • Consumer surplus increases to P_1TV **(1)** • Consumer surplus increases by P_eP_1VU **(1)**	**(4)**

Question Number	Answer	Mark
11	**Knowledge 1, Application 1, 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** 1 mark for defining producer surplus, e.g.: • Producer surplus is the difference between the price which producers are willing to sell at and the market price/ • Difference between market price and lowest price firms are willing to accept **(1)** **Application** 1 mark for the following diagram, showing the correct shift in demand  **Analysis** Up to 2 marks for likely impact on producer surplus: • Producer surplus is originally ABP_e **(1)** • Producer surplus increases to ACP_1 **(1)** • Producer surplus increases by P_eBCP_1 **(1)**	**(4)**

Summary of changes from Provisional Mark Scheme

A few minor changes were made to the Mark Scheme before marking on the marking service began. These have been highlighted in red in the Mark Scheme. The changes have been highlighted in the table:

Question Number	Summary of change
11	**The final bullet point under analysis said:** Consumer surplus decreases by P_eP_1VW **(1+1)** **This now says:** Consumer surplus decreases **(1)** by P_eP_1VW **(1)** **That is identifying that consumer surplus decreases is enough for a mark anywhere in the response and identifying the change is now worth one mark.**
12c	**The Analysis section had:** Supply factors • Favourable weather • Good harvests • Indian Government subsidising sugar production • India/Thailand had record levels of production/helping to increase global production to 11% higher than in 2017 Demand factors • Consumption of sugar has fallen because of increasing health concerns • Competition from substitutes such as artificial sweeteners • In the USA/Europe/China/Australia sugar consumption has fallen **This now has:** Supply factors • Favourable weather **(1)** • Good harvests **(1)** • Indian Government subsidising sugar production **(1)** • India/Thailand had record levels of production/helping to increase global production to 11% higher than in 2017 **(1)** Demand factors • Consumption of sugar has fallen because of increasing health concerns **(1)** • Competition from substitutes such as artificial sweeteners **(1)**

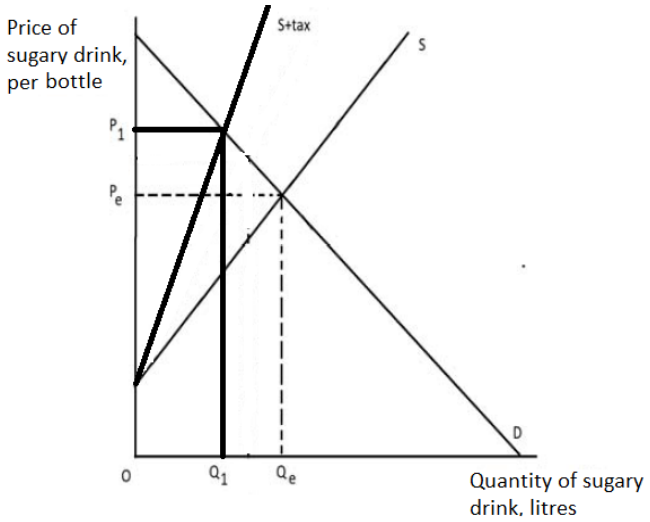
	• In the USA/Europe/China/Australia sugar consumption has fallen **(1)** **This is to make it clearer when to award marks**
12d	The original application read: • There is overconsumption of sugar (1) 73 grams per day against a recommendation of 50 grams per day (1) • Consumers may be unaware of how sugar consumption contributes to obesity (1) as how the body processes excess sugar to fat (1) • People are unaware of the risks associated with a high sugar diet (1) The application now reads: • 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) **The change enables explicit reference to data from the Extract to be awarded**
12d	**Under evaluation bullet point 2 the original point read:** • The issue of information gaps may reduce over time **(1)** with the internet closing the information gap **(1)** In this new Mark Scheme it reads: • 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)** **Many learners talked about ways the gap can be closed over time by governments and this has been added as an acceptable response.**
12e	**The 12th bullet point read:** • Producer surplus increases from CKP_1 to ELP_2 **The 13th bullet point now reads:** • Producer surplus increases **This should have been removed from the original Mark Scheme**

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 is 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)**

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)**

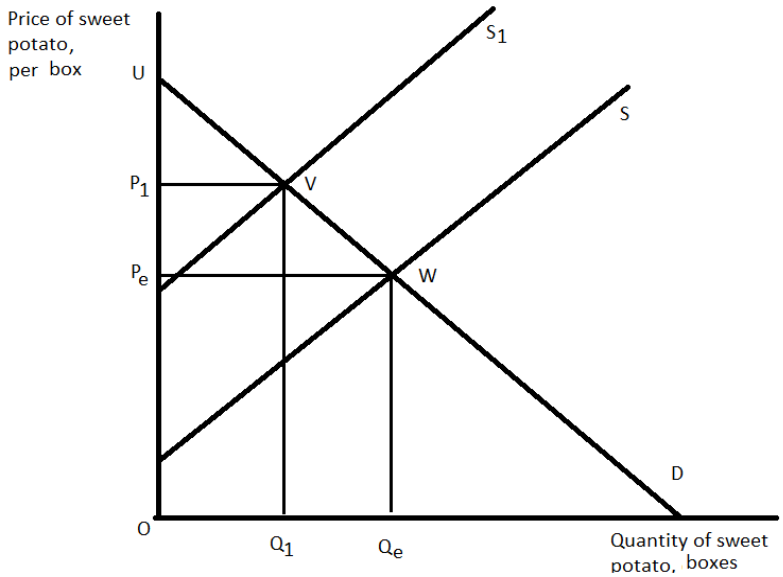
Section B

Question Number	In October 2017 the United Arab Emirates (UAE) introduced an indirect tax on energy drinks. The tax is charged at 50% of the price of energy drinks. Draw a diagram to illustrate the impact of the introduction of the indirect tax on the equilibrium price and quantity of energy drinks in UAE. 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** • Original supply and demand diagram with correct original equilibrium **(1)** **Application** Up to 3 marks for the following information included on diagram: • Shifting supply to the left **(1)** • Including the new equilibrium quantity and price **(1)** • **And** for **pivoting** the supply curve **(1)**  	**(4)**

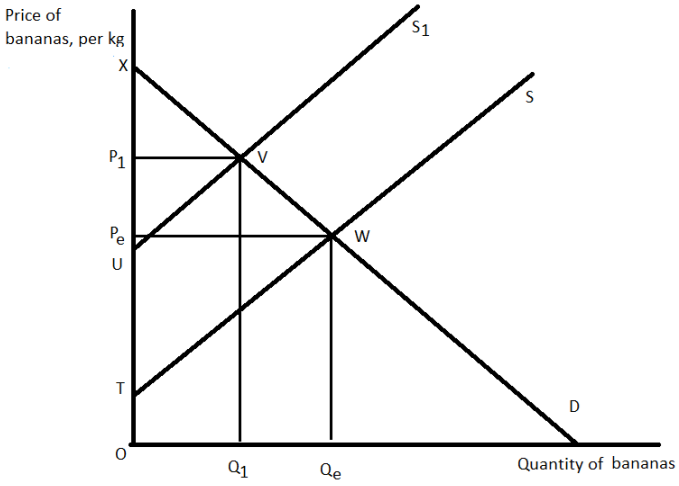
Question Number	With reference to the change in how electricity was generated, explain the difference between 'renewable resources' and 'non-renewable resources'. Answer	Mark
8	**Knowledge 2, Application 2** **Knowledge** 2 marks for defining 'renewable resources' and 'non-renewable resources' • Renewable resources are resources that can be used again and again/used repeatedly/resources that do not diminish/do not deplete/replenished naturally in short time **(1)** • Non-renewable resources are resources that deplete with use/resources that do diminish/used up quicker than it can be replenished/supply is finite **(1)** **Application** 2 marks for applying to the data in the table e.g.: • Hydro/wind/solar are renewable **(1)** • Coal/gas are non-renewable **(1)**	**(4)**

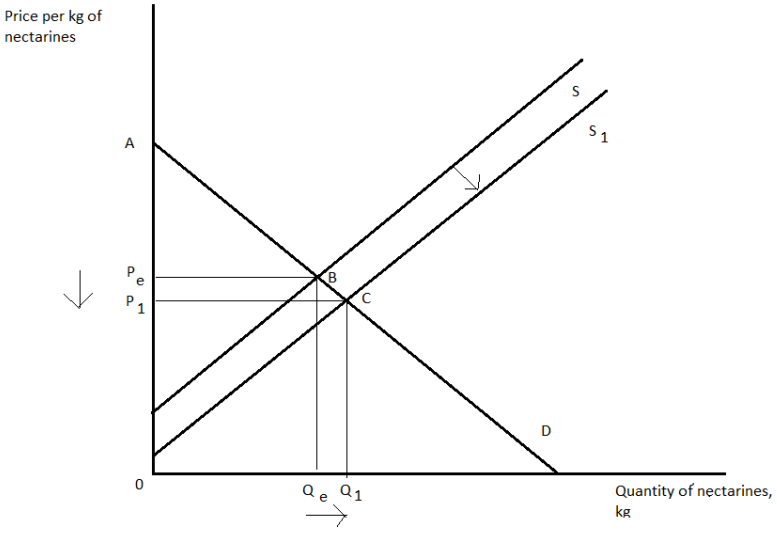
Question Number	Adam Smith wrote that by applying the division of labour in a pin factory, ten workers were able to increase production from 200 pins per day to 48 000 pins per day. Explain **one** advantage to firms of using the division of labour to organise production. Answer	Mark
9	**Knowledge 1, Application 1, Analysis 2** **QS1:** Calculate, use and understand ratios and fractions. **QS9**: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. **Knowledge** 1 mark for identifying an advantage of the division of labour, e.g.: • Increased output per worker/increased productivity/lower training costs/reduce costs per unit/machinery can replace workers **(1)** OR 1 mark for definition of division of labour, e.g. • Where production is broken down into tasks and each worker focuses on one task **Application** 1 mark for applying to the stem/Adam Smith/ pin factory or production, e.g.: • Output per worker has increased from 20 to 4 800/workers will only be trained in one element of putting together the pins **(1)** **Analysis** Up to 2 marks for linked expansion of the advantage e.g.: • The workers will focus on one task **(1)** and will become experts at that task **(1)** • The workers will not need to keep changing tools **(1)** enabling them to save time **(1)** • Workers will only need to be trained in how to do one task **(1)** rather than having to know how to complete every stage of production **(1)** • With the same number of workers being able to produce more output **(1)** the costs of making each item will be lower **(1)** • The tasks become simpler **(1)** and can often be automated **(1)**	**(4)**

Question Number	In 2019 Netflix increased the price of its basic subscription streaming service from $7.99 to $8.99 in the USA. It was estimated that there would be an 8% decrease in the number of consumers with Netflix subscriptions. *Ceteris paribus*, calculate the price elasticity of demand for the basic subscription for Netflix. Show your workings. Answer	Mark
10	**Knowledge 1, Application 3** Quantitative skills assessed: **QS8:** Make calculations of elasticity and interpret the result. **Knowledge** • 1 mark for the formula for price elasticity of demand: $\frac{\%\text{ change in quantity demanded}}{\%\text{ change in price}}$ **OR** • 1 mark for identifying that the good has relatively price inelastic demand/ The PED is inelastic as a rise in price sees quantity demanded change by a smaller percentage **(1)** **Application** Up to 3 marks for calculations: • Change in price ÷ original price 1 ÷ 7.99 x 100 = 12.52% **(1)** • % Change in quantity ÷ % change in price -8% ÷ 12.52% **(1)** = -0.6/-0.64/-0.639 **(1)** **NB: if correct answer (-0.6/-0.64/-0.639) is given, award full marks regardless of working.** **NB: (0.6/0.64/0.639) would be awarded 3 marks.**	**(4)**

Question Number	Between August 2018 and August 2019 the world price of sweet potatoes increased from $12 to $22.50 per box. This was caused by Hurricane Florence and heavy rains in the USA, the world's largest supplier. Explain the likely impact of this change in price on consumer surplus in the market for sweet potatoes. Illustrate your answer with a diagram. Answer	Mark
11	**Knowledge 1, Application 1, Analysis 2** Quantitative skills assessed: **QS4**: Construct and interpret a range of standard graphical forms **Knowledge** 1 mark for defining consumer surplus • Consumer surplus is the difference between the price which consumers are willing to pay and the market price **(1)** **Application** 1 mark for the following diagram, showing the correct shift in supply  	

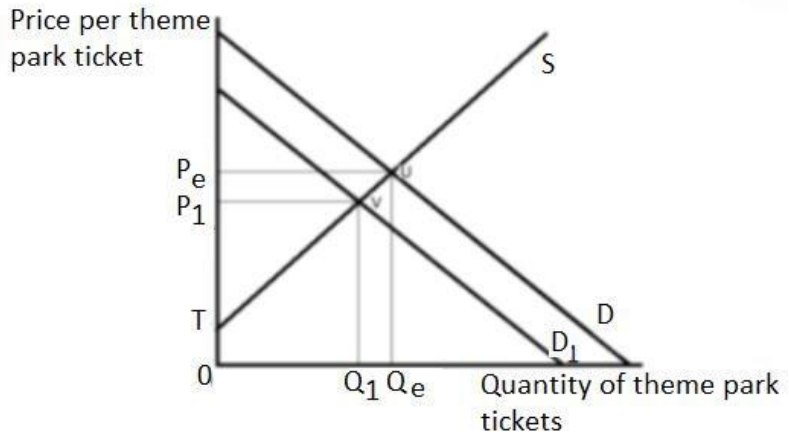
	Analysis Up to 2 marks for likely impact on consumer surplus • Original consumer surplus is P_eUW **(1)** • New consumer surplus is P_1UV **(1)** **Or** • Consumer surplus decreases **(1)** by P_eP_1VW **(1)**	**(4)**

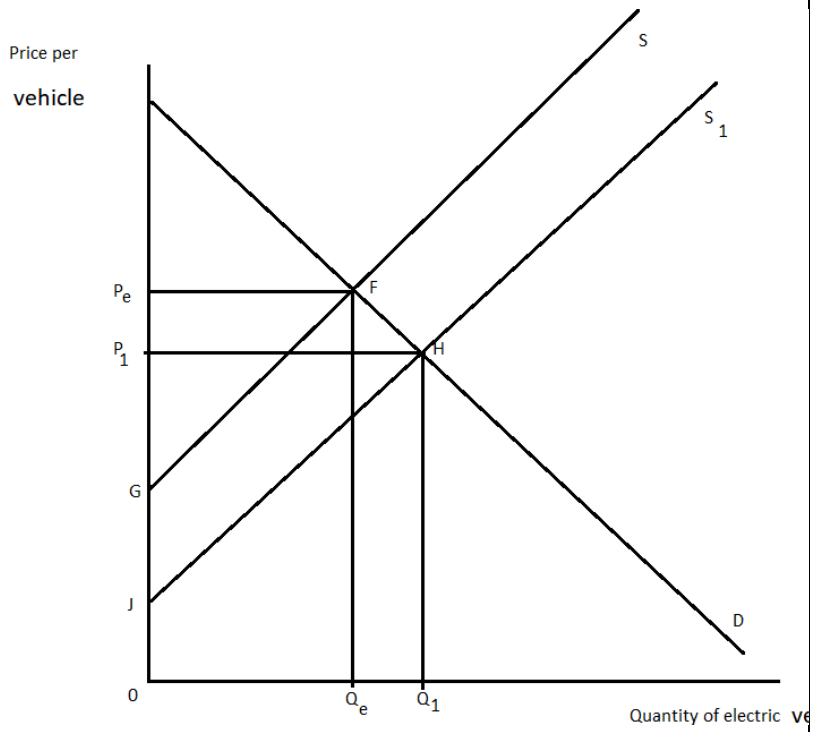
Question	Between January 2020 and May 2020 the price of bananas charged by retailers in the USA increased from $1.17 to $1.30 per kg. This was mainly caused by increased costs of transportation from banana growers to markets in North America. Explain the likely impact of this change in price on consumer surplus. Illustrate your answer with a diagram. **Answer**	Mark
11	**Knowledge 1, Application 1, Analysis 2** Quantitative skills assessed: **QS4**: Construct and interpret a range of standard graphical forms **Knowledge** 1 mark for defining consumer surplus • Consumer surplus is the difference between the price which consumers are willing to pay and the market price/gap between the equilibrium price and the demand curve **(1)** **Application** 1 mark for the following diagram, showing the correct shift in supply  **Analysis** Up to 2 marks for likely impact on consumer surplus • Consumer surplus is originally P_eWX **(1)** • Consumer surplus decreases **(1)** to P_1VX **(1)** • Consumer surplus decreases **(1)** by P_eP_1VW **(1)**	**(4)**

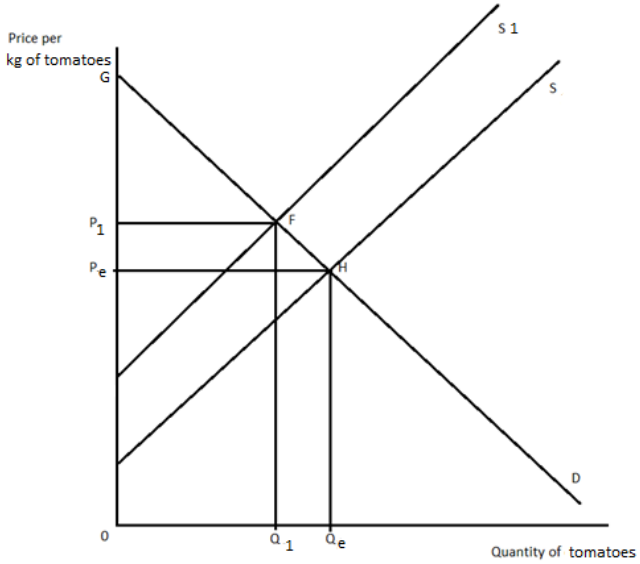
Question	Explain the likely impact of this change in price on consumer surplus in the market for nectarines. Illustrate your answer with an appropriate diagram. **Answer**	Mark
11	**Knowledge 1, Application 1, Analysis 2** Quantitative skills assessed: **QS4**: Construct and interpret a range of standard graphical forms **QS9**: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. **Knowledge** • 1 mark for definition of consumer surplus e.g.: The difference between the price consumers are willing to pay and the price they pay/gap between the equilibrium price and demand curve **(1)** **Application** 1 mark for the following diagram, showing supply shifting right  **Analysis** 1 mark for the original consumer surplus • ABP_e **(1)** 1 mark for the new consumer surplus • ACP_1 **(1)** **OR** 2 marks for the change in consumer surplus • Consumer surplus increases **(1)** by BCP_1P_e **(1)**	**(4)**

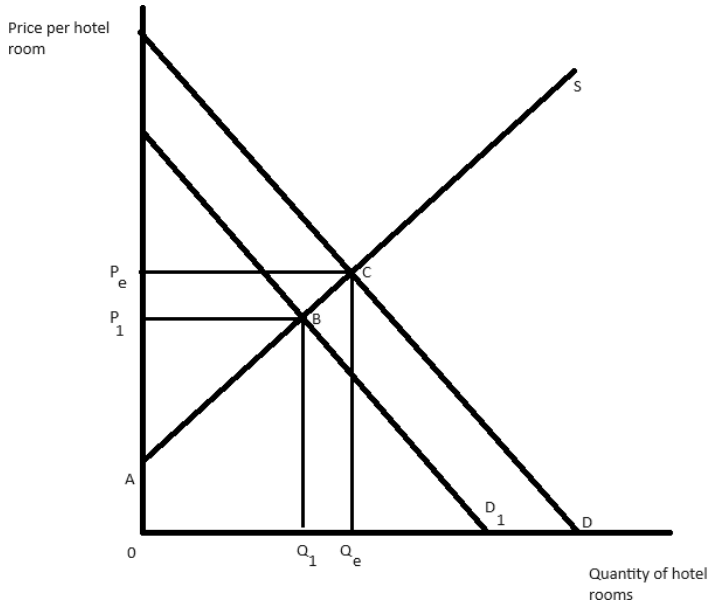
Section C

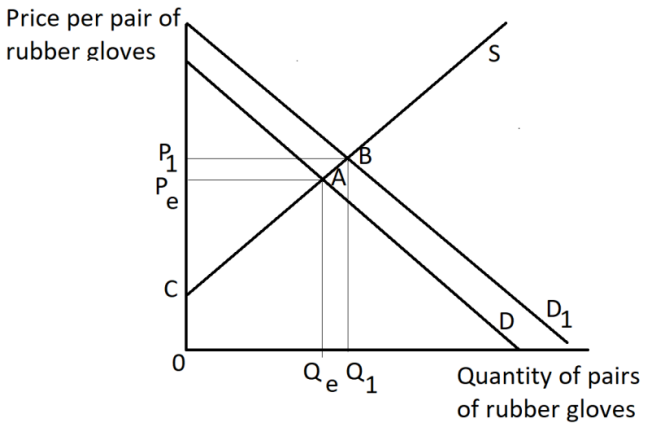
Question	Define the term 'external costs' (Extract C, line 11). **Answer**	Mark
12 (a)	**Knowledge 2** Up to 2 marks for defining 'external cost', e.g.: • Costs to third parties **(1)** • Negative **(1)** impact on third parties **(1)** • Where MSC > **(1)** MPC **(1)** • Economic agents not involved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

Question	*Ceteris paribus*, explain the likely impact of this decrease in visitor numbers on the producer surplus for Legoland. **Answer**	Mark
11	**Knowledge 1, Application 1, 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** • 1 mark for definition of producer surplus e.g.: Producer surplus – the difference between the price charged and the price the firm is willing to sell at/above the supply line and below the equilibrium price **(1)** **Application** 1 mark for shifting demand to the left **(1)**  **Analysis** Up to 2 marks for showing the change in producer surplus Original producer surplus decreased from P_eUT **(1)** to P_1VT **(1)** **Or** Producer surplus decreases **(1)** by P_eP_1VU **(1)** Shaded reduction in producer surplus **(1)**	**(4)**

Question	*Ceteris paribus*, explain the likely impact of this change in production costs on producer surplus in the electric vehicle market. Illustrate your answer with a supply and demand diagram **Answer**	**Mark**
11	**Knowledge 1, Application 1, 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** 1 mark for definition of producer surplus e.g.: • The difference between the market price and the price at which the suppliers are willing to sell/the cost of supply **(1)** **Application** 1 mark for correct shift of supply to the right **(1)**  **Analysis** Up to 2 marks for showing the change in producer surplus Old producer surplus FGP_e **(1)** New producer surplus HJP_1 **(1)** Producer surplus increases **(1)**	**(4)**

Question	*Ceteris paribus*, explain the likely impact of this change in supply on the consumer surplus in the tomato market. Illustrate your answer with a supply and demand diagram. **Answer**	Mark
11	**Knowledge 1, Application 1, 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** 1 mark for definition of consumer surplus e.g.: • The difference between the market price and the price at which the consumers are willing to buy/pay **(1)** **Application** 1 mark for correct shift of supply to the left **(1)**  **Accept perfectly inelastic supply curves for each year** **Analysis** Up to 2 marks for showing the change in consumer surplus Original consumer surplus GHP_e **(1)** New consumer surplus GFP_1 **(1)** **OR** Consumer surplus decreases **(1)** by FHP_eP_1 **(1)**	**(4)**

Question	Between 2019 and 2022 the number of international visitors to Czechia decreased from 6.8 million to 4.5 million. Ceteris paribus, explain the likely impact on the producer surplus in the hotel market in Czechia. Illustrate your answer with a supply and demand diagram. **Answer**	**Mark**
11	**Knowledge 1, Application 1, 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** 1 mark for definition of producer surplus e.g.: • Producer surplus is the difference between the amount a producer is willing to sell a good for and the price they actually receive/ shown by the difference between the supply curve and the market equilibrium price **(1)** **Application** 1 mark for inwards/leftwards shift of demand **(1)**  **Analysis** Up to 2 marks for showing the change in producer surplus • Producer surplus decreases **(1)** by $BCPeP_1$ **(1)** **Or** • Original producer surplus ACPe **(1) and** New producer surplus ABP_1 **(1)**	**(4)**

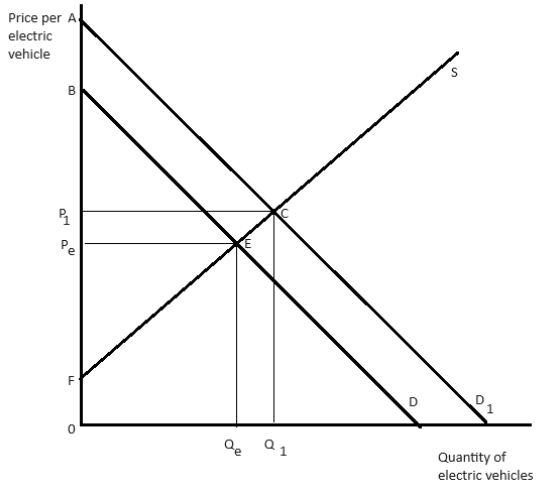
Question	Examine the effect on producer surplus of the change in market conditions for rubber gloves as described in Extract C. Include a diagram in your answer. **Answer**	Mark
12(d)	**QS4**: Construct and interpret a range of standard graphical forms **QS9**: Interpret, apply and analyse information in written, graphical, tabular and numerical forms **Knowledge 2, Application 2, Analysis 2, Evaluation 2** **Knowledge** 1 mark for definition of producer surplus Producer surplus is the difference between the price firms are willing to sell at and the market price **(1)** 1 mark for original supply and demand and equilibrium **(1)** **Application** • Rapidly rising demand for rubber gloves/increased number of sales to healthcare sector/366% increase in profits in Q2 at Top Glove **(1)** • Diagram showing demand shifting right **(1)** **Analysis** • Original producer surplus ACP_e **(1)** and New producer surplus BCP_1 **(1)** **OR** • Producer surplus increases **(1)** by ABP_1P_e **(1)**  **Evaluation** Up to 2 marks for evaluative comments (2+0 or 1+1), e.g.: • Magnitude of change in producer surplus significant **(1)** as indicated by 366% increase in profits for Top Glove **(1)**	**(8)**

	• 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)**	

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.

Section D

Question	Evaluate the microeconomic benefits of this increase in demand for electric vehicles. Illustrate your answer with a supply and demand diagram. **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** • Between 2017 and 2023 electric vehicles sales increased from 1.18m to 13.8m globally/increase by 12.62m/ increased 1069.5% • Demand shifts right D to D_1 • Producer surplus increased from EFP_e to CFP_1 • Consumer surplus increased from BEP_e to CAP_1  • Tax revenue increase for governments if indirect tax imposed on electric vehicles • Reduced external costs associated with non-electric vehicles • Creation of external benefits- e.g. those employed in electric vehicles manufacturing spending more in local businesses • Increased demand for complementary products- e.g. electric charging units • Increased employment in the electric vehicle manufacturing industries • Creates an incentive for firms to shift production to electric vehicles from other types of vehicles • Signals to consumers/producers that these products are more in demand as sales and prices rise **Maximum of Level 3 with only 1 benefit** **Maximum of Level 3 without a supply and demand diagram**

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 • Costs to produce electric vehicles are still high so profit may not increase • Cost to government to provide electric chargers • Loss of tax revenue as people substitute away from petrol/ diesel cars • The magnitude/size of the increase was 1069.5% which shows substantial benefits are likely • As more and more vehicle manufacturers start to produce electric vehicles the increased competition will reduce the producer surplus • Electric vehicles need a lot of resources to produce them- the mining of which can be damaging to the environment • Decreased demand for substitute products- diesel and petrol vehicles • An increase in demand for electricity leading to more electricity generation and if using non-renewable resources is damaging to the environment • The price rise may reduce affordability for poorer household	
o	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 Number	Quantitative skills assessed	Answer	Mark
1	**QS9**: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	A	**(1)**
2	–	C	**(1)**
3	–	A	**(1)**
4	**QS9**: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	B	**(1)**
5	**QS9**: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	B	**(1)**
6	**QS8**: Make and interpret calculations of elasticity	D	**(1)**

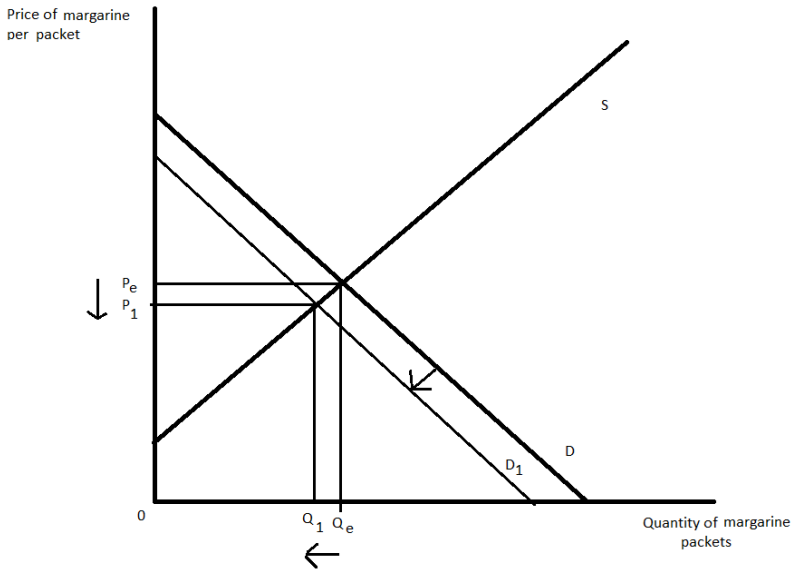
Section A

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)**

Question	With reference to the information given, explain the difference between the rationing function and the incentive function of the price mechanism. **Answer**	**Mark**
9	**Knowledge 2, Application 2** **QS9**: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. **Knowledge** 1 mark for definition of rationing function e.g.: • When a resource is scarce its price rises which discourages demand/ where a price rise will result in a contraction of demand **(1K)** 1 mark for definition of incentive function e.g. • A price rise creates an incentive for firms to provide the good/ higher prices generate more profit so firms extend supply **(1K)** **Application** 1 mark for applying stem to rationing e.g.: • The rising price of cotton results in rationing to those most able to afford **(1AP)** 1 mark for applying stem to incentives e.g.: • The rising price of cotton t-shirts would create an incentive to produce more/ • Farmers switched to growing wheat for animal feed as there was an incentive for higher profit **(1AP)**	**(4)**

		B is not correct because at point Y there are fewer capital goods so the growth rate will be slower. **D** is not correct because the movement to Y results in a gain of 25 consumer goods	
5		**The only correct answer is D** **A** is not correct because this is an example of poor computation **B** is not correct because they are more likely to switch if they do not feel valued **C** is not correct because this is an example of herding/being influenced by others' behaviour	**(1)**
6	**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 B** **A** is not correct because this is the producer incidence **C** is not correct because this is the tax revenue earned by the government/includes both consumer and producer incidence **D** is not correct because this multiplies the Sol 0.60 by the wrong quantity (380 000)	**(1)**

Section B

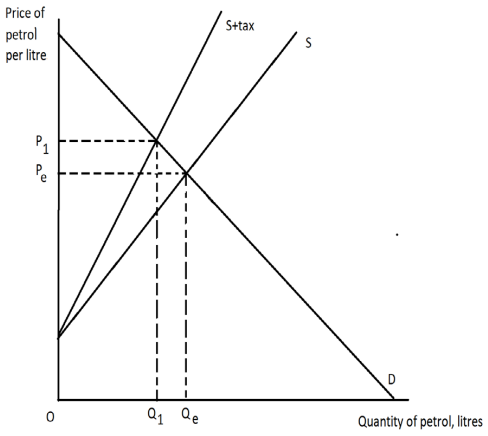
Question	Draw a diagram to illustrate the likely impact of this increase in real incomes on the equilibrium price and quantity of margarine. **Answer**	Mark
7	**Knowledge 1, Application 3** Quantitative skills assessed: **QS4**: Construct and interpret a range of standard graphical forms **QS9**: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. **Knowledge** 1 mark for showing knowledge on diagram • Original supply and demand and correctly labelled axes **(1)** **Application** Up to 3 marks for the following information included on diagram: • Leftward shift of demand **(1)** • Original equilibrium price and quantity **(1)** • New equilibrium price and quantity **(1)**  	**(4)**

Section C

Question	Define the term 'indirect tax' (Extract B, line xx). **Answer**	Mark
12 (a)	**Knowledge 2** 1 mark for: • Expenditure/sales/consumption tax/tax added to the price of a good **(1)** And 1 mark for any 1 of the following: • Paid to the government through a third party **(1)** • Could be ad valorem or specific tax **(1)** • Increases costs **(1)** • Decreases supply **(1)** • Used to discourage consumption **(1)** • Examples of indirect taxed including VAT/excise duties/customs duties **(1)** • Ireland plans to introduce an indirect tax on clothing **(1)**	**(2)**

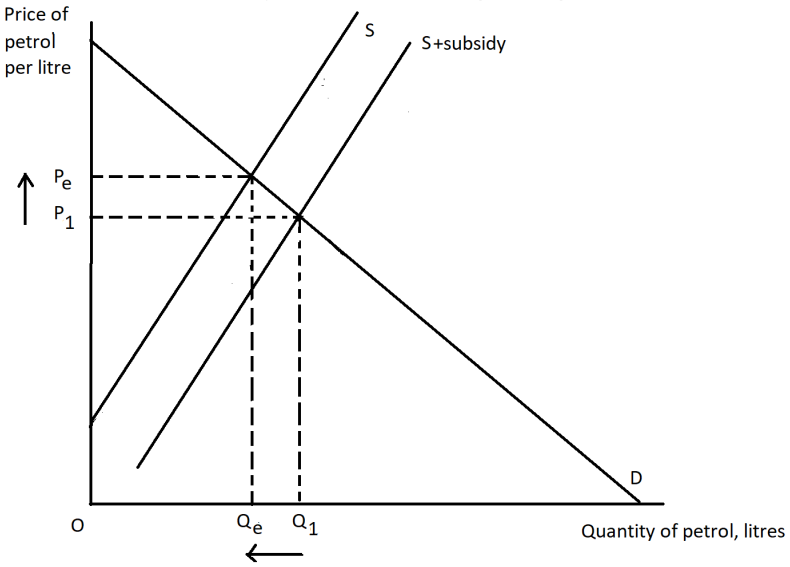
Question	With reference to the **titles** of Extract A and Extract B, explain the difference between positive statements and normative statements. **Answer**	Mark
12 (b)	**QS9**: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. **Knowledge 2 Application 2** **Knowledge** 1 mark for definition of positive statements: • Based on facts/can be proven with evidence/value free/ objective/scientific approach to decision making **(1)** 1 mark for definition of normative statements: • Based on value judgments/not based on facts/cannot be proven with evidence/ subjective/non-scientific approach to decision making **(1)** **Application** Up to 2 marks for application: • 'World cotton price rises' is a positive statement as the price data/Figure1 can be used to prove prices rose **(1)** • 'Clothing manufacturers should reduce environmental costs' is a normative statement as indicated by reference to 'should' **(1)**	**(4)**

Section B

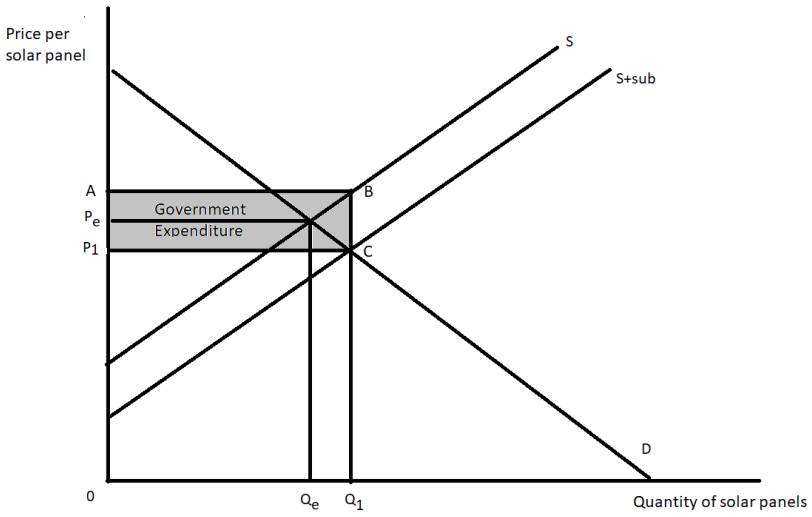
Question Number	Saudi Arabia introduced its first indirect tax on the sale of goods and services in 2018. The tax is charged at 5% of the price of goods and services. Draw a diagram to illustrate the impact of the introduction of the indirect tax on the equilibrium price and quantity of petrol in Saudi Arabia.	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 drawing original supply and demand (they do not have to include market equilibrium). OR • 1 mark for definition of indirect tax e.g. tax on expenditure OR • 1 mark for definition/identification of ad valorem **Application** Up to 3 marks for the following information included on diagram: • 1 mark for drawing a supply curve to the left of original • 1 mark for the new supply curve pivoting rather than parallel to old supply curve • 1 mark for labelling the new higher price and lower quantity.  	**(4)**

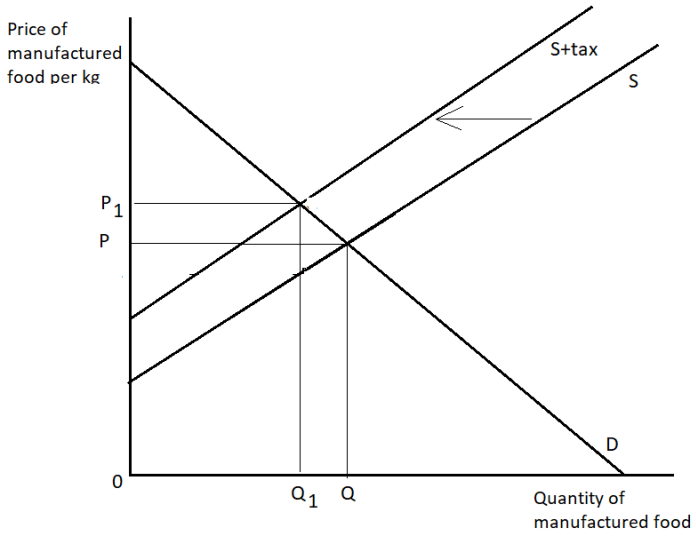
Question Number	Rimac manufacture electric cars. With the first model, the Concept_One, an individual worker was responsible for building each car from start to finish. Only seven were manufactured. In 2017 €30 million was spent on developing a factory which would use the division of labour to manufacture 200 Concept_Two cars. With reference to the market for car manufacturing, explain **one** benefit of the 'division of labour'.	Mark
8	**Knowledge 2, Application 2** **Knowledge** Up to 2 marks 1 mark for defining 'the division of labour' e.g. The division of labour is where the production process is broken down into stages and each worker focuses on a specific task **(1)**. Up to 2 marks for explaining one benefit, e.g. • Less training is required **(1)** as workers will only need to be trained on one task **(1)**. • Productivity will increase **(1)** as workers do not have to keep changing tools/ as workers become highly skilled at specific tasks **(1)**. • Capital may replace workers **(1)** saving on labour costs **(1)**. **Application** Up to 2 marks for applying to the market for car manufacture, e.g.: • Production of cars increases from 7 to 200 cars **(1)** • Rather than training staff how to put together all components of the car **(1)** you can spend less time training on a specific task such as fitting the windscreen **(1)**. • Rimac can put in place a production line where some tasks will be completed by robots/capital **(1)** which can be cheaper to run when compared to paying wages **(1)**.	**(4)**

Section B

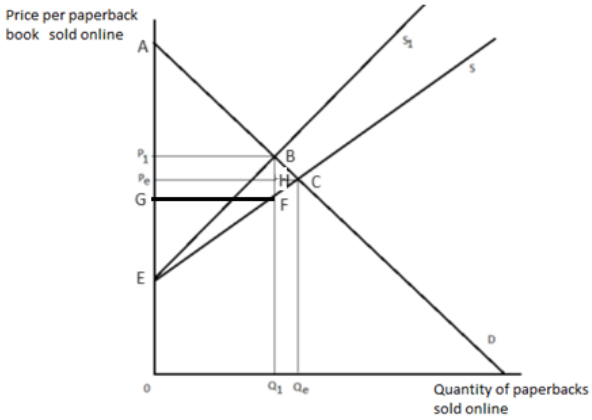
Question Number	In 2016 the Nigerian Government removed the subsidy on petrol. Draw a diagram to illustrate the impact of the removal of the subsidy on the equilibrium price and quantity of petrol. Answer	Mark
7	**Knowledge 1, Application 3** Quantitative skills assessed: **QS4**: Construct and interpret a range of standard graphical forms **QS9**: Interpret, apply and analyse information in written, graphical and tabular forms. **Knowledge** • 1 mark for drawing original supply and demand (they do not have to include market equilibrium). **Application** Up to 3 marks for the following information included on diagram: • 1 mark for drawing a supply curve to the left of original • 1 mark for labelling the new higher price • 1 mark for labelling the new lower quantity.  	**(4)**

Section B

Question		Mark
	China aims to increase electricity generation from renewable resources. China's Government has introduced a subsidy for solar panel manufacturers. Draw a diagram to illustrate the impact of the introduction of a subsidy on the market for solar panels. Show the new equilibrium price and quantity and the area of government expenditure on the subsidy in your diagram. **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** • Original supply and demand with equilibrium price and quantity **(1)** **Application** Up to 3 marks for the following information included on diagram: • Shifting supply to the right **(1)** • The new equilibrium quantity and price **(1)** • The area of government expenditure on the subsidy is P_1ABC **(1)**  The supply curve may be pivoted or shifted	**(4)**

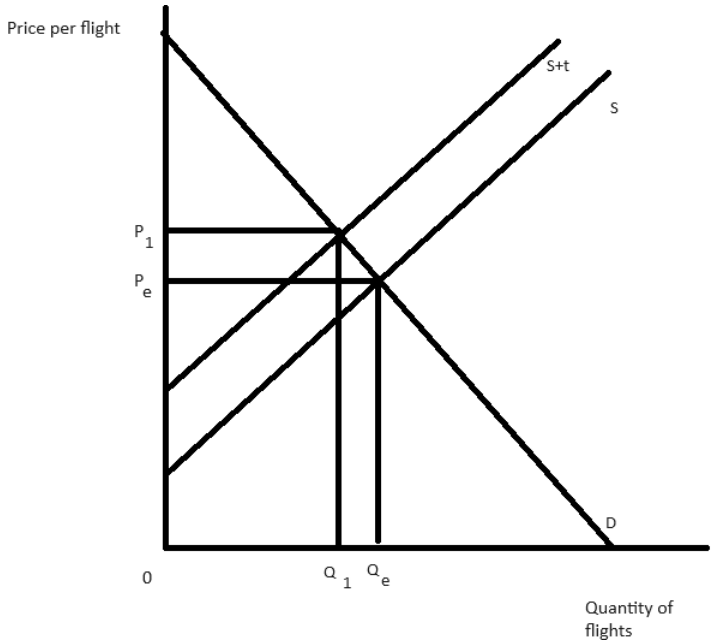
Question	Explain the impact of the introduction of this indirect tax on the market for food products containing salt added by manufacturers. Illustrate your answer with an appropriate diagram. **Answer**	Mark
11	**Knowledge 1, Application 1, Analysis 2** Quantitative skills assessed: **QS4**: Construct and interpret a range of standard graphical forms **QS9**: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. **Knowledge** • 1 mark for definition of indirect tax e.g.: Indirect tax is an expenditure tax/consumption of goods and services **(1)** **Application** 1 mark for the following diagram, showing a specific tax where the supply curve shifts to the left rather than pivots  **Analysis** 1 mark for showing the change in price • Price increases from P to P_1 **(1)** 1 mark for showing change in quantity • Quantity decreases from Q to Q_1 **(1)**	**(4)**

	1 mark for showing the government revenue/producer incidence/consumer incidence/change in consumer surplus/change in producer surplus	

Question	Explain the impact of the introduction of this indirect tax on the market for paperback books sold online in Vietnam. Illustrate your answer with an appropriate diagram. **Answer**	Mark
11	**Knowledge 1, Application 1, 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** • 1 mark for definition of indirect tax e.g.: tax on expenditure/spending/goods and services **(1)** **Application** 1 mark for pivoting supply to the left **(1)**  **Analysis** Up to 2 marks for explaining or showing diagrammatically an impact e.g.: • Price rises/ from P_e to P_1 **(1)** • Quantity falls/ from Q_e to Q_1 **(1)** • Government revenue is $BFGP_1$ **(1)** • Producer incidence is $HFGP_e$ **(1)** • Consumer incidence is BHP_eP_1 **(1)** • Producer surplus decreases **(1)** from CEP_e to BEP_1 **(1)** • Consumer surplus decreases **(1)** by BCP_eP_1 **(1)/** ACP_e to ABP_1 **(1) OR** • Consumer surplus ACP_e to ABP_1 **(1+1)**	**(4)**

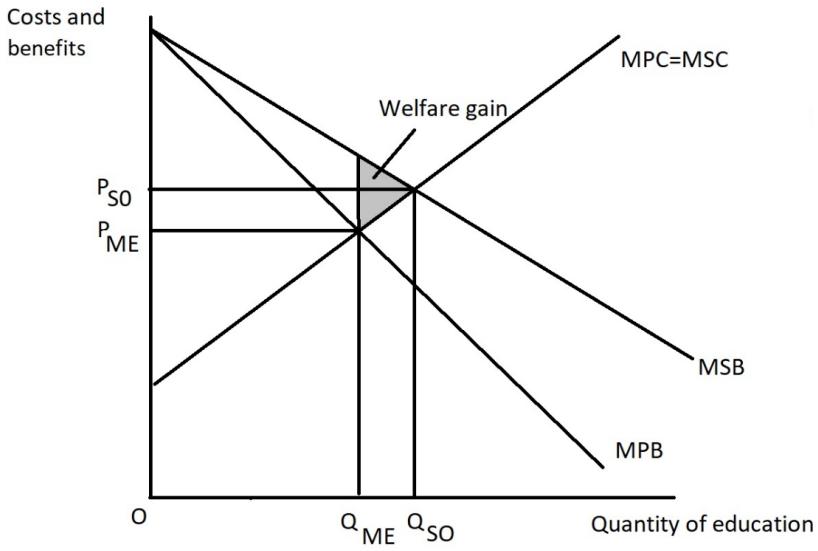
Question	With reference to Zimbabwe, explain the difference between a 'specific tax' and an 'ad valorem tax'. **Answer**	**Mark**
9	**Knowledge 2, Application 2** **QS9**: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. **Knowledge** 1 mark for definition of specific tax e.g.: • A fixed amount/set amount of tax added on a particular good/where there would be a parallel shift in supply **(1K)** Reward correctly drawn diagram clearly identified as specific 1 mark for definition of ad valorem tax • A percentage tax based on the price of the item/ where there would be a pivot of the supply curve **(1K)** Reward correctly drawn diagram clearly identified as ad valorem **Application** Up to 2 marks for applying to stem e.g.: • Tax on energy drinks of $0.05 per litre/smartphones of $50 per device are specific **(1AP)** • VAT (consumption tax) raised from 14.5% to 15% is ad valorem **(1AP)**	**(4)**

Section B

Question	In 2023 the Government of France considered imposing an indirect tax on aviation fuel for those using private jets. This was to be set at a rate of €0.65 per litre. Draw a diagram to illustrate the impact of imposing an indirect tax on aviation fuel for private jets. **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 diagram • Original supply and demand and correctly labelled axis **(1)** **Application** Up to 3 marks for the following information included on diagram: • Original equilibrium price and quantity labelled **(1)** • Leftward shift of supply (**not** pivot) **(1)** • New equilibrium following a shift (**not** pivot) **(1)**  **NB Award maximum 2 marks if the supply curve is pivoted** **Accept other reasonable axis labels**	**(4)**

Question	With reference to Extract C, examine two microeconomic effects of Finland's decision to remove the sugar tax. **Answer**	Mark
12(d)	**Knowledge 2, Application 2, Analysis 2, Evaluation 2** **Knowledge and Analysis** Up to 1 marks for knowledge of taxation, e.g.: • Definition of indirect tax: expenditure tax/ This sugar tax is a specific tax **(1)** Up to 2 marks for identifying two effects and up to 2 marks for linked explanations showing the impact of removal of the sugar tax, e.g.: • Removal will see the supply curve shift right leading to lower price paid by consumers **(1+1)** • The equilibrium quantity will increase meaning consumption of sugary products will rise **(1+1)** • The tax revenue earned by the government will fall reducing funds to tackle obesity **(1+1)** • Revenues and profits earned by firms with products who have the tax removed will increase as output rises. **(1+1)** • With the lower price the gap between what consumers are willing to pay and the market price will rise **(1+1)** • Producer surplus will rise as supply increases/demand extends **(1+1)** • The producers of biscuits and cakes will lose a competitive advantage and may lose revenue/ profit **(1+1)** • External costs may emerge as rates of obesity/ cancers etc rise **(1+1)** • Reward relevant diagrammatic analysis **Application** Up to 2 marks for reference to the given sources, e.g.: • Tax affects sweets, chocolate, ice cream and fizzy drinks **(1)** • Tax charged at €0.95 per kilogram or €0.11 per litre **(1)** • 5% reduction in consumption when tax imposed so removal may see consumption rise **(1)** • Tax was unfair with manufacturers of biscuits and cakes avoiding tax **(1)** • Tax revenue lost €109 million per year **(1)** **Evaluation** Up to 2 marks for evaluative comments, e.g.: • Whilst firms charged the sugar tax will benefit other firms will lose their competitive advantage **(1+1)** • External costs must be balanced with private benefits of production/ employment is created in the manufacturers of sweets, chocolate, ice cream and fizzy drinks **(1+1)**	**(8)**

	• Magnitude: the tax only caused a 5% reduction in consumption so removing it may only have limited impact on quantity demanded **(1+1).** • Magnitude: loss of Government revenue of €109 million per year is substantial meaning loss of funds for public services **(1+1)** • Measurement of the size of any external costs caused by extra sugar consumption is difficult to determine and quantify **(1+1)** • Extra sugar consumption may have impact over time with rates of obesity, diabetes and cancer rising later **(1+1)**	

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  • 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

Question Number	Answer	Mark
12 (d)	**Knowledge 2, Application 2, Analysis 2, Evaluation 2** Quantitative skills assessed: **QS9**: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. **Knowledge and Analysis** 1 mark for knowledge of indirect taxation, e.g.: • Definition of indirect taxation: expenditure taxation **(1)** Up to 2 marks for identifying two effects and up to 2 marks for linked explanations showing the impact of high indirect taxation, e.g.: • Indirect taxation causes the supply curve shift to left leading to higher price paid by consumers/as a result of higher costs to firms **(1+1)** • The equilibrium quantity will decrease compared to market equilibrium meaning consumption of petrol will fall **(1+1)** • External costs will fall as the tax moves us from the market equilibrium towards the social optimum **(1+1)** • The taxation revenue earned by the government can fund the tackling of external costs associated with petrol consumption **(1+1)** • Firms paying the tax will face higher costs resulting in a fall in profits **(1+1)** • With the high price the gap between what consumers are willing to pay and the market price will fall **(1+1)** • Producer surplus will fall as supply decreases **(1+1)** • High level of taxation may cause government failure if it causes the unintended consequence of smuggling from countries near India with lower taxation **(1+1)** • High levels of taxation may reduce external costs by moving us closer to the social optimum **(1+1)** (Reward relevant diagrammatic analysis)	

	Application Up to 2 marks for reference to the given sources, e.g.: • Indirect taxation is almost half of the price of petrol and diesel **(1)** • 'The significant fall in the global oil prices only resulted in a 7% decrease in the price of petrol and diesel' **(1)** **Positive effects may be offered as KAA and negative effects as EV or vice-versa** **Evaluation** Up to 2 marks for evaluative comments, e.g.: • This is a substantial taxation at almost 50% of price of petrol/diesel so will have a significant impact on price **(1+1)** • The tax makes up a large proportion of the price because the substantial fall in oil prices has only resulted in a small reduction in price of diesel and petrol **(1+1)** • Elasticity of demand is likely to be highly inelastic suggesting impact on quantity will be relatively small **(1+1)** • Health benefits will occur if external costs fall showing a positive impact of the taxation **(1+1)**	**(8)**

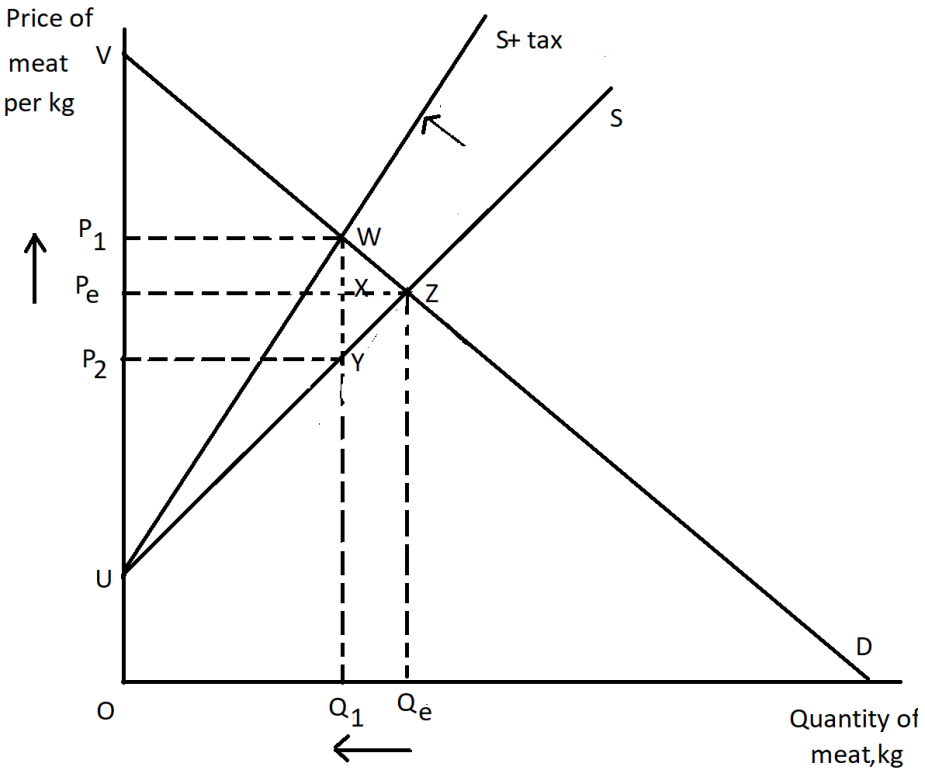
Question	With reference to Extract C, examine **two** likely effects of the subsidies paid by Canada's Government to farmers who use more organic farming methods. **Answer**	Mark
12(d)	QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms Knowledge 2, Application 2, Analysis 2, Evaluation 2 Knowledge and Analysis Up to 2 marks for identifying two effects and up to 2 marks for linked explanations, e.g.: • The subsidy should reduce farmers' reliance on fertiliser (1K) helping reduce the environmental damage (1AN) • Farmers will research new production methods (1K) that will use less fertiliser to help reduce carbon emissions (1AN) • Farmers will be encouraged to adopt more organic production methods (1K) as the subsidy reduces costs of production of these methods (1AN) • Output may fall (1K) as fertiliser use is discouraged (1AN) • Increased organic output (1K) may result in increased employment in the sector (1AN) • Job losses in the fertiliser industry (1K) as the quantity of fertiliser consumed falls (1AN) • Reduces use of fertiliser (1K) helping to reduce external costs (1AN) • Lower organic food prices (1K) will result in increased consumer surplus (1AN) • Two marks for diagram showing the correct shift in supply (1K) and the impact of the subsidy on equilibrium price/quantity (1AN) Application Up to 2 marks for application to Extract C • Fertilisers have accounted for 10% of Canada's greenhouse gas emissions since 1990 (1AP) • To reach its 2030 greenhouse gas emissions target it needs to reduce its fertiliser use (1AP) • CA$ 750 million to farmers over ten years to use more organic farming methods to achieve this target (1AP) Evaluation Up to 2 marks for evaluative comments (2+0 or 1+1), e.g.: • CA$ 750m subsidy may be too small to have a substantial impact on changing farmers' behaviour (1+1) • Subsidies will have an opportunity cost as the funds cannot be used to pay for e.g. healthcare or education (1+1) • Farmers may become dependent on the subsidies resulting in a need to pay them for a long time (1+1)	(8)

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 marks for identifying effects and 2 marks for linked explanation, e.g.: • Consumers may switch to less polluting fuels **(1K)** as the price increases for coal **(1AN)** • Lower levels of external costs **(1K)** as quantity consumed will decrease **(1AN)** • Government raises tax revenue **(1K)** that can be used to compensate those affected by coal consumption **(1AN)** • Diagram showing leftward shift or pivot of supply curve **(1K)** and showing impact on price/quantity/incidence of tax/tax revenue **(1AN)** • The number of premature deaths may be avoided **(1K)** as the tax increases the costs of producing coal **(1AN)** • Producers may substitute to other sources **(1K)** like oil which could emit harmful carbon emissions/ like renewables which will reduce carbon emissions **(1AN)** • Increase costs of production **(1K)** resulting in a contraction of demand **(1AN)** • Consumer surplus will decrease **(1K)** referring to original and new area on diagram **(1AN)** • Producer surplus will decrease **(1K)** referring to original and new area on diagram **(1AN)** **Application** Up to 2 marks for application to Extract C • In 2018 coal accounted for 40% of energy generated in Indonesia **(1AP)** • Caused 95 155 premature deaths in 2018 **(1AP)** • The tax is expected to raise $3.6 billion per year **(1AP)** • 1.96 million people are employed in coal mining **(1AP)** • Coal exports earn $19 billion per year **(1AP)** **Evaluation** Up to 2 marks for evaluative comments (2+0 or 1+1), e.g.: • It may take time for producers to switch from coal to other alternatives **(1+1)** • $3.6bn is a substantial amount of money raised by the government enabling significant compensation for those negatively affected by coal production **(1+1)** • Employment in the coal industry may fall having a significant impact, since 1.96 million people were employed in 2019 **(1+1)** • Depends on the size of the tax **(1)** • Depends on the PED/PES **(1)** **NB** Positive points may be presented as KAA and negative as EV or vice versa	**(8)**

	NB Responses must have a micro-economic focus e.g. employment effects on coal industry and not macroeconomic effects e.g. increased unemployment	

Question	With reference to Extract C, examine **two** effects of the Government of Ghana's decision to end the subsidies paid to cocoa farmers. **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, e.g.: • Farmers will be discouraged from growing cocoa **(1K)** as the removal of the subsidy increases costs of production **(1AN)** • Decreased cocoa output **(1K)** may result in decreased employment in the sector **(1AN)** • Reduces use of fertiliser as output decreases **(1K)** helping to reduce external costs **(1AN)** • Higher cocoa prices **(1K)** will result in decreased consumer surplus **(1AN)** • Diagram showing the correct leftward shift in supply **(1K)** and the impact of removing the subsidy on equilibrium price/quantity **(1AN)** • Farmers will reduce investment **(1K)** as less funds available for research and development **(1AN)** • Reduced opportunity cost **(1K)** as the funds can be used to pay for e.g. healthcare or education **(1AN)** **Application** Up to 2 marks for application to Extract C • Spent \$200 million in 2019/ \$400 million in 2020 **(1AP)** • To allow farmers to purchase fertiliser **(1AP)** • To ensure that farmers' incomes are not too low **(1AP)** • The Government found it difficult to fund these payments **(1AP)** **Evaluation** Up to 2 marks for evaluative comments (2+0 or 1+1), e.g.: • \$400 million subsidy removed could cause a substantial fall in consumer surplus/producer surplus **(1+1)** • Farmers may be dependent on the subsidies resulting in a substantial problem for farmers when their income from the subsidy falls **(1+1)** • Removal of subsidy might promote investment as a means of increasing productivity and reducing costs **(1+1)** • Impact depends on PED for cocoa – if inelastic then price rise will be greater than if elastic **(1+1)**	**(8)**

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 CO_2 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

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. 

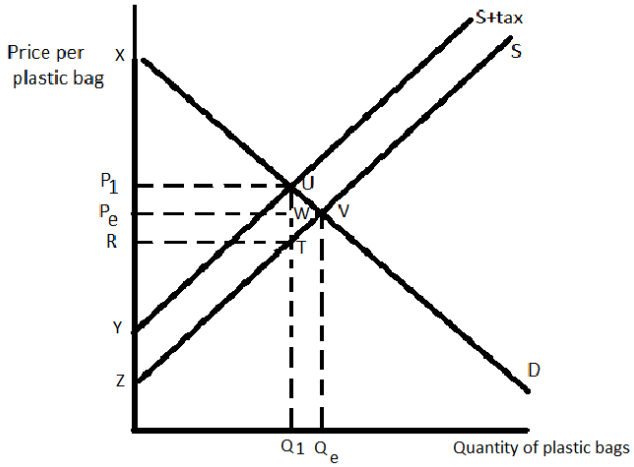
	• Originally the price paid by consumers was P_e but rises to P_1 • Revenue earned by meat producers per unit sold falls from P_e x Q_e to P_2 x Q_1 • Consumer surplus falls from P_eVZ to P_1VW. A change/ Reduction of P_eP_1WZ. • Producer surplus falls from P_eUZ to P_2UY. • Government revenue earned from the tax P_1P_2YW. • Consumer incidence P_eP_1WX. • Producer incidence P_eP_2YX. • Quantity of meat consumed will fall from Q_e to Q_1 • External costs reduced: ○ Reduced greenhouse gas emissions ○ Reduced water pollution ○ Reduced chance of resistance to antibiotics ○ Reduced damage to health- obesity, diabetes and cancer- reducing costs to health services • Welfare loss from overconsumption will be reduced. • Deadweight loss WYZ. • Helps to meet Paris agreement target on carbon emissions. • 40% tax on beef, 20% on dairy products and 8.5% on chicken would save 500 000 lives a year and reduce emissions. • Total revenue earned by meat producers may fall. • Profits generated by meat producers may fall. • Employment in meat production may fall. • Impact on consumers living standards with such a large tax.

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 size of tax is important. Suggested 40% tax on beef significant so likely to have a large impact. • Measurement – it is hard to measure what the ideal tax rate is for each meat/ Hard to measure the external costs associated with each meat. • Farmers/ meat producers may earn less income and lead some to leave the industry. • May create government failure as some may trade illegally to avoid or evade taxation. • Demand for some meats may be price inelastic meaning little change in quantity demanded; larger change in price, larger consumer incidence. • Indirect tax affects lower income families more as the tax will represent more of their total income.	
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

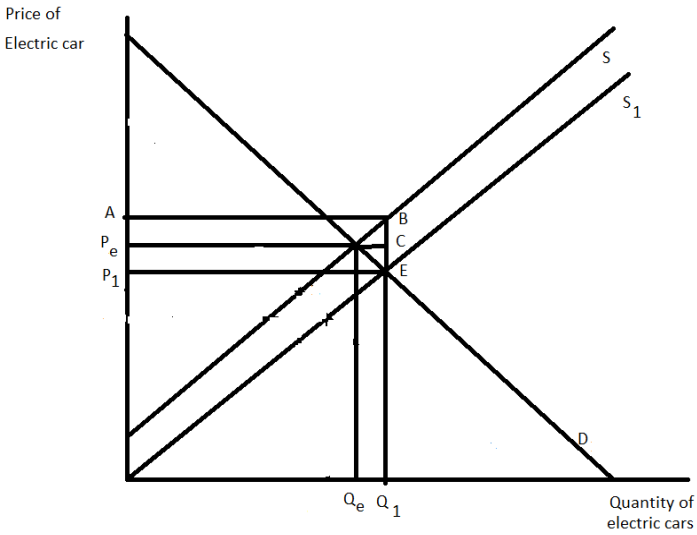
Question Number	'The HPV vaccine is recommended for all adults in the USA because it reduces the risk of cancer by 88%. If the HPV vaccine was given to all adults 925 000 cases of cancer would be prevented. However only 18.3% of adults were vaccinated between 2011 and 2014 preventing 170 000 cases of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

Question	With reference to Extract C, Figure 1 and Figure 2, discuss the microeconomic impact of the introduction of an indirect tax on plastic bags. 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 'indirect tax' – expenditure tax • Indirect tax is €0.04 per plastic bag in Greece and €0.27 in Denmark • This is a specific tax: a fixed amount for each unit • Increases the cost of production for retailers • Diagram showing the indirect tax for plastic bags  Accept diagram showing external costs with tax imposed • Originally the price paid by consumers was P_e but increases to P_1 • Quantity of plastic bags decreases from Q_e to Q_1 • In January 2018 there was a 75% decrease in use of plastic bags compared to January 2017 • Reduces consumption of plastic bags closer to EU target of 90 bags per person per year • Consumption is down from approximately 240 plastic bags per person per year • Consumer surplus decreases from P_eVX to P_1UX. A change/ decrease of P_eP_1UV - consumers suffer

	• Producer surplus decreases from P_eVZ to RTZ • Government tax revenue P_1RTU • Producer incidence P_eRTW • Consumer incidence P_eP_1UW • Government raises €0.04 per bag • Profits generated by plastic bag manufacturers and retailers may fall • Total revenue earned by plastic bag firms may fall • Employment in plastic bag manufacturers may fall • EU uses 100 billion plastic carrier bags per year- tax contributes to reducing this/ helps reduce marine litter (3%) • Reducing external costs caused by plastic bags • Reusable shopping bag sales increased 5 000% in Greece helping to increase revenue, producer surplus • Creates market for multiple use plastic bags which are not used according to Figure 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 of tax. Just €0.04 in Greece so may not have a large impact • The €0.04 tax resulted in 75% decrease in use of plastic bags • Denmark the tax was €0.27 causing reduction from 800 million to 400 million- lower tax may not have such an impact • Denmark only raised 0.03% of total tax revenue in 1994 from the plastic bag tax and 0.02% of tax revenue in 2014 with a higher tax, with just €0.04 tax likely even smaller impact/ Denmark only raised €24 547 in 2014 • Measurement – it is hard to measure the size of external costs to decide what the ideal indirect tax should be • May create government failure as reusable bags may be damaging/ resources wasted in administration of tax • May be better to decrease consumption by giving information on the external	

	costs associated with plastic bags • Incidence of tax depends on the price elasticity of demand. If inelastic consumer incidence will be bigger/ if elastic producer incidence will be higher • In Denmark consumers at supermarkets seem to have more inelastic demand hence charged (i.e. consumer pays) whereas clothing shops consumers have more elastic demand and are not charged for bags (i.e. producer pays) • PED might change over time and / or if the tax is increased

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.

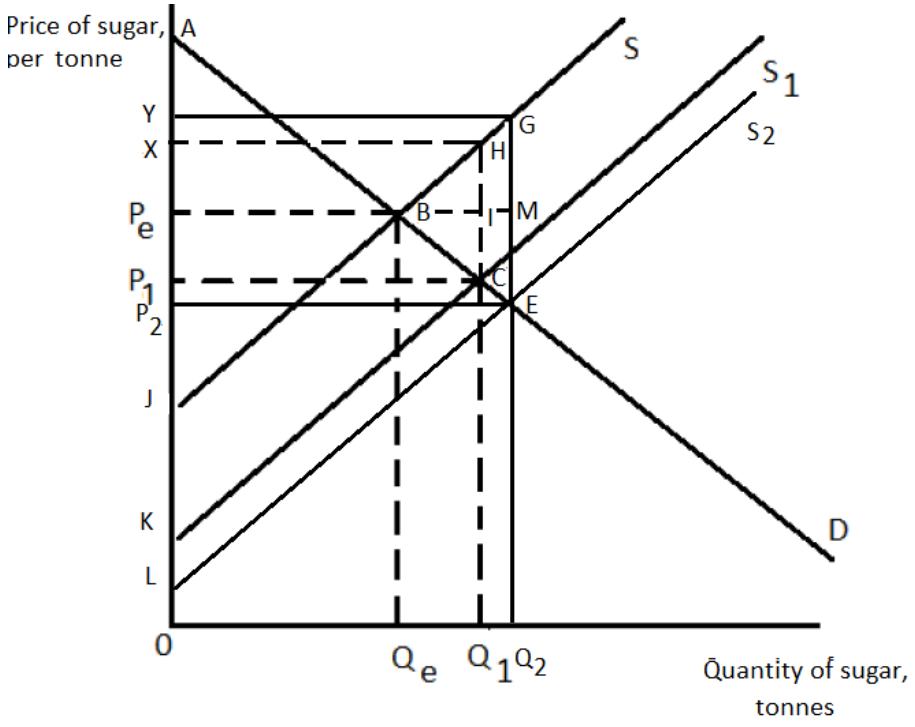
Question Number	Indicative content
12 (e)	**Indicative content guidance** Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make but this does not imply that any of 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** • Definition of 'subsidy': - a cash grant to encourage production • Lowers the cost of production • $5000 subsidy paid per car to the manufacturer  • Supply shifts right S to S_1 • Price paid by consumers falls P_e to P_1 • Price received by producer increases from P_e to A • Consumer surplus increases • Producer surplus increases • Quantity of electric cars consumed increased from Q_e to Q_1 (from the current 2% of cars) • Size of the subsidy - costs to the government- $ABEP_1$ an opportunity cost • Consumer subsidy - P_eCEP_1 due to paying a lower price • Producer subsidy - $ABCP_e$

	• Revenue, profits increase for electric car manufacturers • Electric cars are zero emissions so help reduce carbon emissions compared to petrol and diesel cars • Reduces external costs associated with driving cars • Road transportation accounts for 20% of Canada's carbon emissions- helps reduce the emissions from road transport • Moves closer to social optimum • Manufacturers of non-electric cars may experience lower sales, lower revenue, lower profits **Positive effects may be offered as KAA and negative effects as EV or vice-versa** **NB: if no diagram candidates can achieve a maximum of 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 • Only on cars valued under $45000 • Only applies to nine electric car models • Infrastructure not being in place may reduce the impact. Only 5800 charging points to share between 37 million people so difficulty in accessing charging points may reduce likelihood of people buying electric • Electric cars cause emissions. To produce an electric car battery requires twice as much energy compared with the production of a petrol or diesel car battery. The electricity used to power the electric vehicle creates emissions if the electricity is generated using fossil fuels like coal • The magnitude of the subsidy is substantial at $5000 • Impact will depend on the time that it takes to make payments/length of time the scheme operates • Electric cars are not a close substitute for petrol or diesel cars and people may not be happy to buy electric • The impact on price to consumers depends on PED - if price inelastic demand the price could fall sharply/if price elastic the price change will be smaller.

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	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 

	• There is an extension of demand as supply increases • Quantity produced/consumed rises from Q_1 to Q_2 • Exports per year grew from 620 000 to 3.3 million tonnes when previous subsidy was introduced • Increasing the subsidy is likely to see further growth in exports- estimate is to 7 million tonnes • Production increases from 20.3 million tonnes to 33 million tonnes. • Increasing exports may improve the balance of trade/current account of balance of payments/injection into the Indian economy • Price decreases from P_1 to P_2 • Consumer surplus increases from ACP_1 to AEP_2 • Producer surplus increases • Government spending increases from P_1XHC to P_2EGY • Producer subsidy increases from P_eXHI to P_eYGM • Consumer subsidy increases from P_eICP_1 to P_eMEP_2 • WTO might intervene • Market may become unprofitable for farmers outside of India- e.g. in Brazil and Australia • The subsidy is likely to increase consumption which may have implications for health in terms of obesity and cancers. These external costs will impose costs on those not associated with sugar consumption- for e.g. healthcare costs for the Government • Impact on businesses using sugar as an ingredient- e.g. biscuits, chocolates, sweet manufacturers **NB Diagram may refer to businesses using sugar as an ingredient** **NB If no diagram maximum of Level 3**

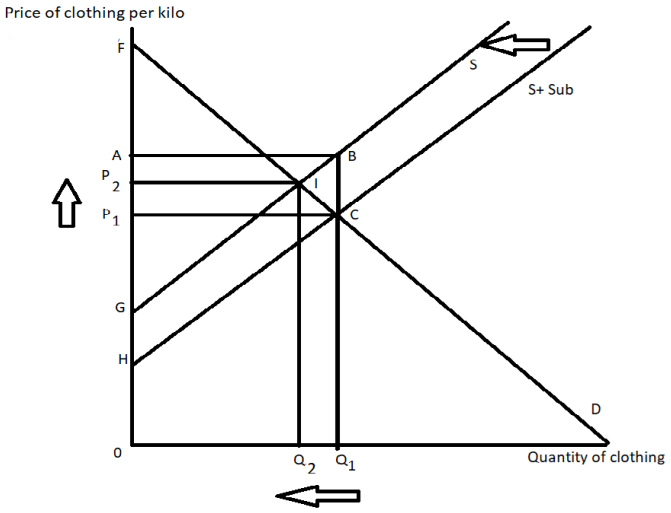
Level	Mark	Descriptor
	0	No rewardable material
Level 1	1–3	Displays isolated, superficial or imprecise knowledge and understanding of economic terms, principles, concepts, theories and models. Use of generic material or irrelevant information or inappropriate examples. Descriptive approach, which has 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 of change in subsidy 55 to 138 rupees is a large increase/151% increase • Magnitude of subsidy- 138 rupees is still not a significant amount of money per tonne • Measurement – it is hard to measure the level of subsidy that should be paid • Over-production may cause waste • Third parties may benefit from the subsidy- suppliers to sugar growers • Elasticity of demand and supply may affect the size of the producer and consumer subsidy • Dependency culture- the growers may become dependent on the subsidy and its withdrawal would cause significant problems • Retaliation from other countries in terms of subsidising supply • May not be the only country subsidising growers- EU, Japan and USA have heavily protected agricultural growers • Opportunity costs of funds that could be better used in providing education/ healthcare/poverty reduction • Impact may be significant because India is the world's second largest sugar producer	
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 Number	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. 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** • Government failure– where government intervention leads to a net welfare loss Possible causes of government failure include: • Information gaps- where the government lacks perfect information and sets the wrong level of regulation/taxation/subsidy • Lack of incentives- where the policy fails to create the incentives for firms and consumers to change their behaviour appropriately • Unintended consequences- where a policy leads to an outcome that was not anticipated, this could include smuggling • Excessive administrative costs- where the costs of administering the regulation or tax are greater than any benefit of the government intervention • Moral hazard- where the costs of an action are likely to be experienced by someone else causing riskier actions Possible responses linked to the stem • The 65% higher price in Thailand gives those in Thailand the incentive to travel to Malaysia to buy cheaper diesel • Even taking in to account the costs associated with travelling the significant difference in price means this activity can be profitable • The returns may be so large that smugglers are willing to take the risk of being caught • 300 000 litres in one night suggests that the smuggling is commonplace • Diesel will have the same properties in both countries so the appearance and smell will be identical making it difficult to discover its origins • This makes it easier to smuggle undetected

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



Consumers and manufacturers must both be considered to achieve level 3.

	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- no data on the size of the subsidy being removed
- Impact on Indian firms may depend on whether demand is price sensitive- if demand is inelastic then less impact/ depends if Indian clothing is demanded for its quality rather than price competitiveness
- Value of PED is important for the impact on consumers
- Higher production costs in Turkey and USA may mean firms in India remain price competitive even after removing subsidy
- Little impact on consumer surplus in India as many goods are exported

	• The fact 35 million people are employed in clothing suggests many Indian firms will perform well without the subsidy • Time lag- short run and long run impacts after subsidies removed • Reduced government spending will enable reduction in taxation/government spending elsewhere

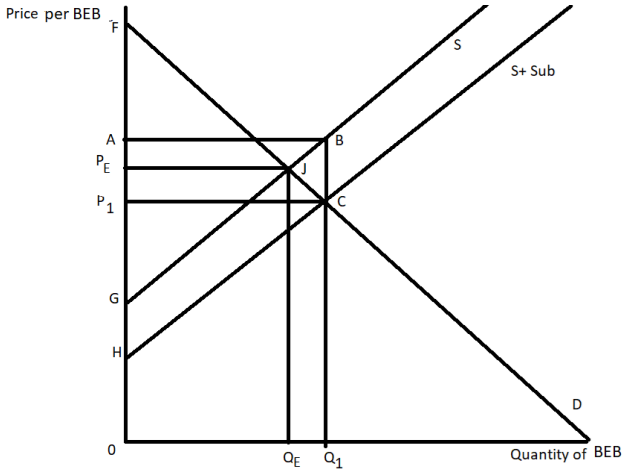
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–2	Identification of generic evaluative comments. No supporting evidence/reference to context. No evidence of a logical chain of reasoning.
Level 2	3–4	Evidence of evaluation of alternative approaches. Some supporting evidence/reference to context. 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 the possible benefits of an economy moving closer to being a 'free market economy'. **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** • Definition of free market economy- resources are allocated by the price mechanism with little/no government intervention • Mixed economy- where resources are allocated by the price mechanism and government • Ireland is a mixed economy with government spending 35.9% of GDP in 2007 and 25.1% in 2019 • Reduced by 10.8 percentage points over 12 years • Movement towards more free market- more resources are allocated by price mechanism and less by the government Benefits of a free market economy • Resources are allocated efficiently to where expected profit is highest • Competition between firms creates better products for consumers • The profit motive encourages firms to spend money to create better products • Resource allocation is determined by the pattern of consumer demand rather than by the government • Competition between firms encourages them to lower prices to keep customers • Reduces risk of government failure as less resources wasted in expensive administration by governments • Incentive to work harder as workers can earn more Candidates should be rewarded for relevant use of a diagram.	

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.

Question	With reference to Extract B and your own knowledge, discuss the possible effects of a subsidy paid to manufacturers of Battery Electric Buses (BEBs). 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 • $979 million allocated to subsidy for BEBs in the USA • Subsidy- decreases costs of production • Increases supply S to S+Sub • Decreases price P_E to P_1 • Increases quantity Q_E to Q_1 • Increases government spending- $ABCP_1$ • Government spending creates an opportunity cost leaving less for other areas of the economy • Consumer surplus increases FJP_E to FCP_1 • Producer surplus increases • BEB cost more than diesel buses and closes the gap • Will be cheaper to run/maintain BEB than diesel buses • Reduce pollution caused by diesel buses, reducing external costs- respiratory diseases, asthma and cancer- health costs lower/less noise pollution • Increase employment in BEB manufacturers • Decrease in employment in diesel bus manufacturing • BEB manufacturing of batteries cause external costs Diagram



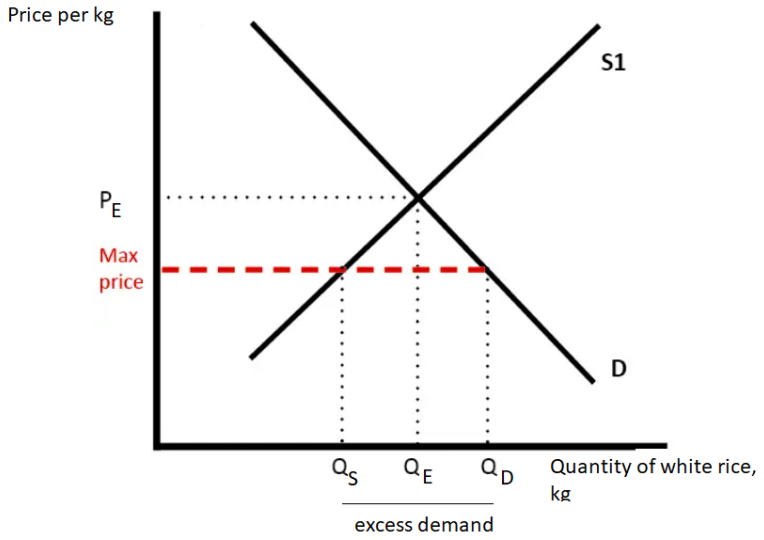
NB Level 3 response requires a diagram
NB Do not reward externalities diagrams
NB Positive effects may be presented as KAA and negative effects as evaluation, or vice versa

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- $979 million will help subsidise many BEB in the USA	

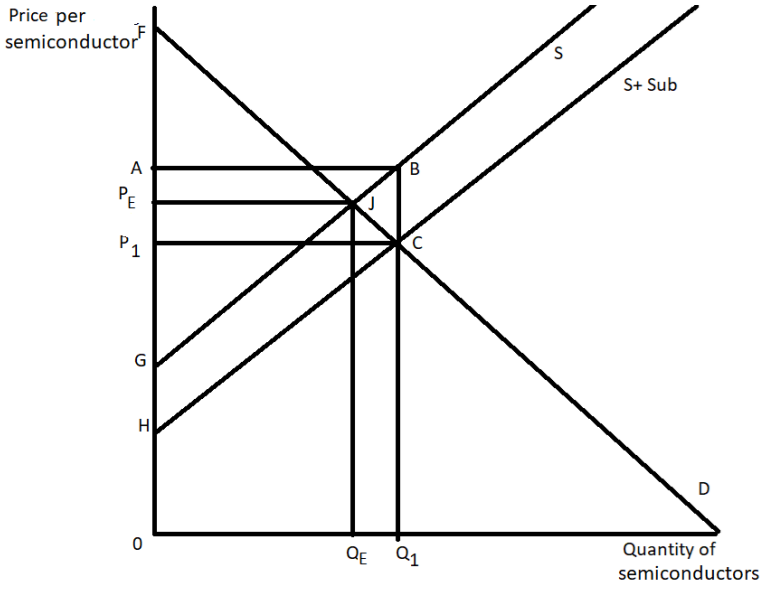
	• Value of PED is important, if firms demand for diesel buses are inelastic they may not substitute to BEB • Depends on the cross elasticity of demand, if close substitutes firms may substitute to BEB • Time lag- short run impact limited as it takes time to manufacture BEB so long run before impact felt • Still use electricity which may use fossil fuels • Can only travel 150 miles on a fully charged battery • Price of a BEB $887 000 compared to diesel $480 000- so even with subsidy price is much higher • Infrastructure spending will be needed

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 the impact of imposing this maximum price on the market for white rice in Sri Lanka. **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** • Maximum price is a price ceiling above which firms cannot charge • Maximum price is below the equilibrium price • Leads to a contraction in supply • Leads to an extension of demand • Creates a disequilibrium • Creates an excess demand  • Ensures white rice remains affordable to consumers • Prevents powerful firms being able to charge high prices • Creates government failure- the emergence of an informal market- illegal trading of rice • Creates queues for goods, time in queues is an opportunity cost and could be spent productively elsewhere • Reduces producer surplus/profits

Diagram



NB Macroeconomic effects e.g. higher tax revenues leading to budget improvement would only achieve Level 1

NB Level 3 response requires a diagram

NB Positive microeconomic effects may be rewarded as KAA and negative effects as EV or vice versa

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.

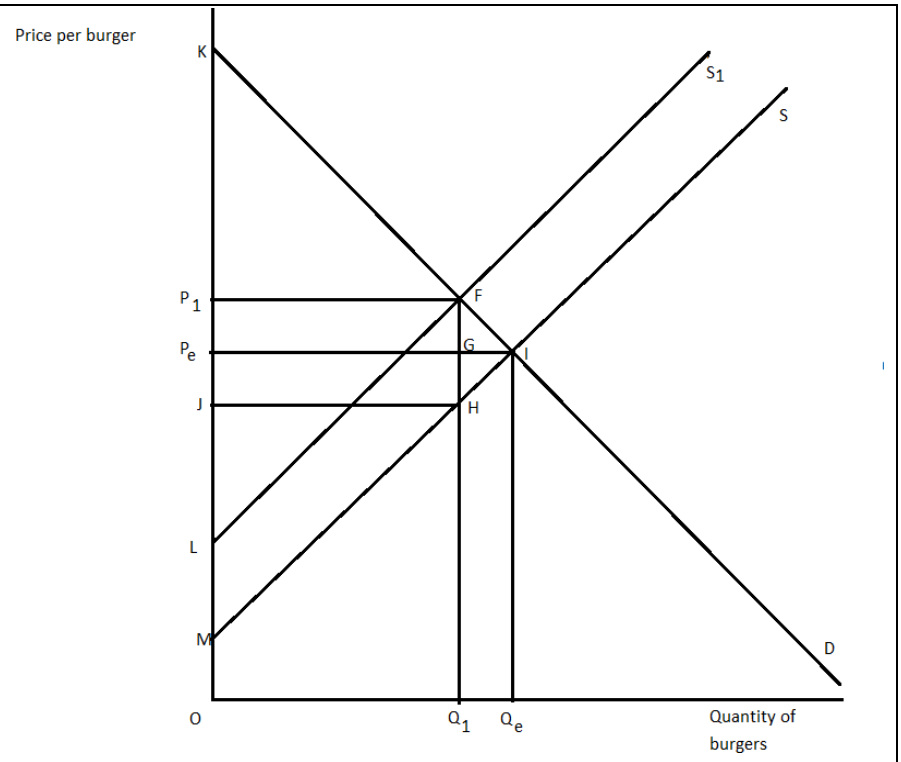
	Evaluation (6 marks) – indicative content • Magnitude- $52 bn in USA • Government spending creates an opportunity cost leaving less for other areas of the economy • Benefits in terms of increased supply of semiconductors takes time as factories take three years to become fully operational • Value of PED is important, if firms' demand for a particular brand of semiconductors is inelastic they may not demand semiconductors from new suppliers • Time lag- short-run impact limited as it takes time to manufacture semiconductors so long-run before impact felt • External costs associated with additional semiconductor manufacturing are difficult to quantify/measure

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 the advantages of a free market economy. **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** • Free market economies- where price mechanism/supply and demand determine resource allocation/where government has minimal involvement in decisions • Hong Kong closest to free market- low tax rates, low government spending and the low level of business regulation Advantages • Incentives to work hard in order to increase incomes • Profit incentive means firms have incentive to be efficient • Consumers are free to choose the goods and services they desire • Producers are free to create products to meet customer needs • Firms are likely to use profits to develop new processes helping to reduce costs and improve efficiency/productivity • Profits invested in innovative new products which better meet consumer needs • Government failure avoided e.g. o surpluses & shortages resulting from price controls o information gaps meaning the intervention is not always the best option o can create unintended consequences such as smuggling o creates excessive administrative costs. • No expensive central planning • Competition between firms may help lower price and increase quantity of goods available • Market forces (invisible hand) helps to clear the market when there is excess demand/excess supply/disequilibrium • Disadvantages of command economy

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

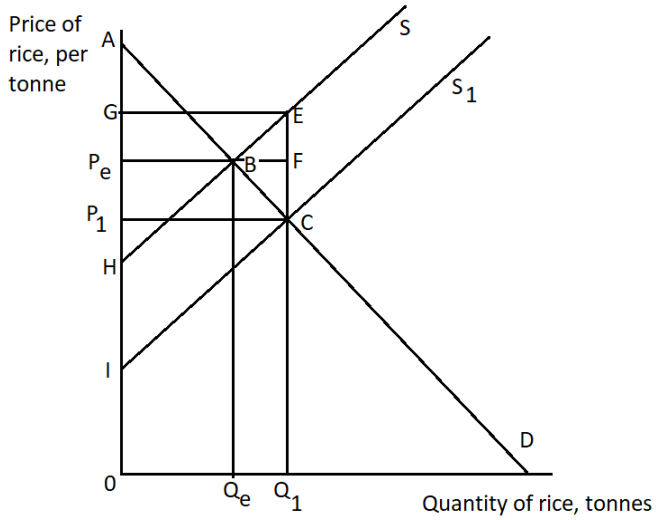


- The indirect tax causes supply to pivot/shift left
- As costs of production rise
- The quantity consumed decreases from Q_e to Q_1. In Hungary there was a 73% reduction in consumption of affected foods/in Mexico 7% reduction in junk food consumption
- With less quantity the amount of junk food consumed decreases and the instances of obesity/ healthcare costs reduce
- The price of junk food increases from P_e to P_1. In Denmark resulted in food prices rising. The revenue for sellers of junk food decreases from OP_eIQ_e to $OJHQ_1$
- The tax revenue earned by the government will be $FGHJP_1$
- Producer incidence will be $GHJP_e$
- Consumer incidence will be FGP_eP_1
- Consumer surplus decreases from KIP_e to KFP_1
- Producer surplus decreases
- As quantity of junk food sales decreases, employment may fall.
- In Hungary people switched to healthier choices e.g. demand for bottled water, fruit and vegetables increased- boost to non-junk food markets

NB Maximum Level 2 if diagram omitted

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- depends on the level of the tax set- if too low then little impact on behaviour • The numbers affected by junk food are estimates which may be inaccurate • Junk food may have highly inelastic demand resulting in little impact on quantity demanded and most of the incidence of the tax being faced by consumers • Junk food market results in external benefits in terms of employment opportunities • Retailers of junk food do offer healthier alternatives • Difficult to measure the size/value of external costs of consumption-so difficult to decide the level of tax to charge • Denmark abandoned the tax as it resulted in food price inflation and job losses • Firms may adjust the contents of the meals to reduce the fat, salt, and sugar content to avoid the tax • Indirect taxes might result in government failure e.g. if they are set too high, information gaps, unintended consequences • Indirect taxes might have a more significant impact on low income families • Other methods e.g. increased information might be more effective than introducing indirect taxes	
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	With reference to Extract C, discuss the benefits of subsidies paid to rice growers. 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** • Subsidies - cash grant to encourage production and consumption • Reduces costs of production for rice growers • Subsidy is used for capital goods, fertiliser and water Subsidy diagram  Consumers • Price paid lowers from P_e to P_1 • Consumer surplus increases from ABP_e to ACP_1 • Quantity consumed increases from Q_e to Q_1 Producers • Increase in amount received increases from $0P_e$ to 0G for each item sold • Producers' revenue increases from $0P_eBQ_e$ to $0GEQ_1$ • Producer subsidy is EFP_eG

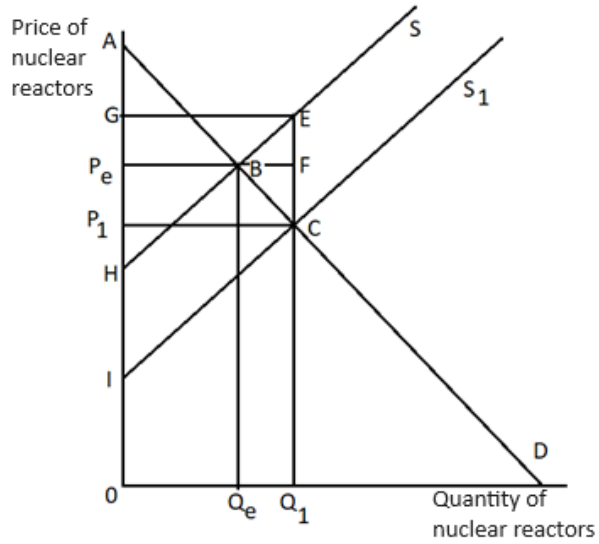
	• Producers increase quantity sold, from Q_e to Q_1 Government • Increased welfare of its citizens as they can now access cheaper rice • Popular amongst farmers • Boosts export revenue income that can be used to buy capital goods and other imports • Boosts rice production creating economic growth Workers • Higher output, results in more workers being needed • Creates more job security whilst the subsidy is paid • Producers have more revenue so can afford to pay more

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- depends on the level of the subsidy set- if too low then little impact on economic agents Consumers • Higher output may cause land to become less fertile and quality of the rice to fall • Will not benefit those that prefer varieties grown in other countries • Depends on the proportion of rice that makes up an Indian consumer's diet Producers • May become reliant on the subsidy • May struggle if the subsidy is removed • May see a decline in the quality of the crop and the amount they can actually sell

	• Increased water use/fertiliser use reduces availability for farmers of other crops Government • Spending by the government will be the area ECP_1G, cost \$6.9bn in 2021 • Opportunity cost- the money spent on rice subsidies cannot be used elsewhere • Removing the subsidies is difficult- resulted in mass protests and the subsidy was reinstated Workers • If the subsidy is removed and output falls- risk of job losses • May keep workers in low-skilled jobs for longer

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	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. **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** • Subsidies- cash grant to encourage production and consumption • Which reduces the cost of production • 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 Subsidy diagram  Consumers • Price paid lowers from P_e to P_1 • Consumer surplus increases from ABP_e to ACP_1 • Quantity consumed increases from Q_e to Q_1 • Consumer subsidy is FC P_1 P_e • Consumers extend their demand from B to C Government

	• Increased welfare of its citizens as they can now access cheaper nuclear energy • Popular amongst voters as it reduces use of carbon-producing fossil fuels • Boosts energy production creating economic growth **N.B.** Award a maximum of level 2 if candidates do not discuss both governments and consumers in their answer **N.B.** Award a maximum of level 2 if candidates do not draw a relevant diagram **NB** Positive points may be presented as KAA and negative as EV or vice versa

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.

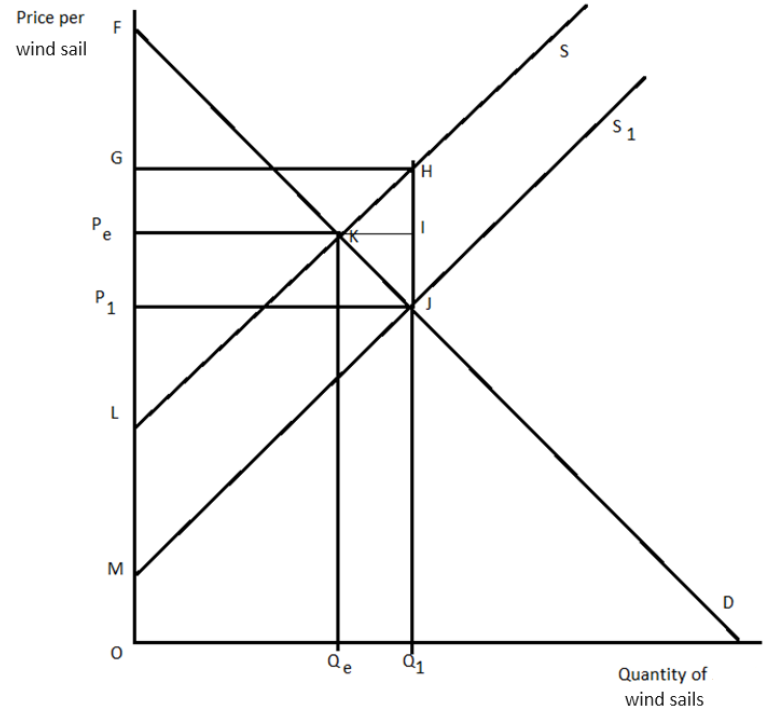
	Evaluation (6 marks) – indicative content • Magnitude- depends on the level of the subsidy set- $17billion in China likely to have a more substantial impact than in South Korea where $515m subsidy • Short-run/long-run effects of subsidy- especially given the time it take to build Consumers • Nuclear power may be preferred to fossil fuels by final consumers but may be less popular than renewable alternatives • Final consumers may face an information gap around nuclear production/subsidies • The impact on consumer surplus/consumer subsidy depends on the PED and PES for nuclear power Government • Spending by the government will be the area ECP_1G • Opportunity cost- the money spent on nuclear subsidies cannot be used elsewhere • Removing the subsidies is difficult- and will be needed for a long time • Large projects often result in overspending • The government may become unpopular because the public may object to nuclear power

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 2022 consumers in the UK who did not switch suppliers for different services at the end of their contracts were paying a total of £1.3 billion more than those consumers who chose to switch suppliers. It is estimated that this applied to: • 630 000 consumers with mortgages • 1.5 million consumers with mobile phone contracts • 7 million broadband consumers. Evaluate possible reasons why consumers did not switch suppliers for these services. **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 • Definition of rational consumers – consumers who maximise utility • Definition of irrational consumers- consumers who fail to maximise utility • Consumers who did not switch suppliers for different services at the end of their contracts were paying £1.3 billion more than those who did switch suppliers • Affected 630 000 consumers with mortgages/1.5 million consumers with mobile phone contracts/7 million broadband consumers • Prices may have been increased by all providers- so less benefit from switching • Information failure- where there is asymmetric information- where one party (bank/mobile provider/ broadband provider) has more information than another (consumer) or there is an information gap where consumers do not have information • Complexity of bills makes it hard to compare options to see if better deals exist • Some consumers may have been unable to switch as they were locked into long/fixed-term contracts Reasons why consumers may not aim to maximise utility: • The influence of other people's behaviour (herding) – consumers may stay with the bank/mobile/broadband provider that their parents/ friends/ peers are using • Habitual behaviour- consumers may be used to using a brand, be in a habit of purchasing from a supplier and have loyalty • Inertia- consumers may not want to spend the time and effort finding a better deal- so they stay with a supplier that charges them more • Poor computational skills- the consumers may not be able to calculate possible savings from switching or the costs of the current deal, therefore they do not know how much they could save • The need to feel valued- consumers may feel valued by their current provider/ they may be part of loyalty schemes / they value the level of customer service offered • Framing and bias- when the information on service options is framed in a way that makes consumers select the more expensive option

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

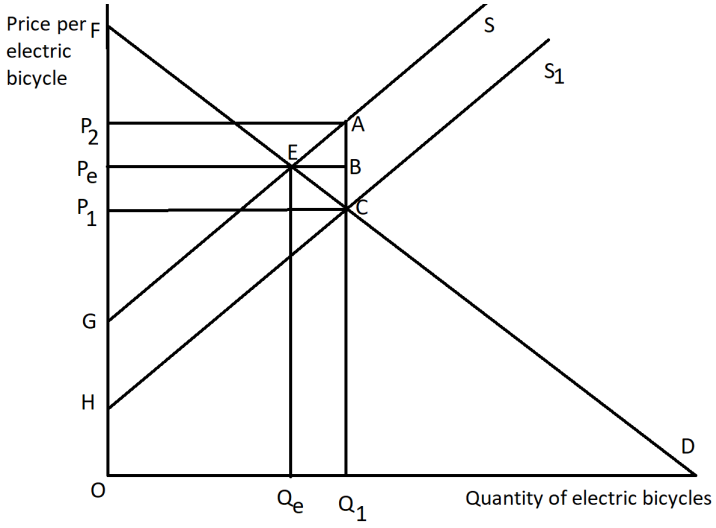


- Price of wind sails reduces P_e to P_1
- Quantity of wind sails increases Q_e to Q_1
- Consumer subsidy P_eIJP_1
- Producer subsidy $GHIP_e$
- Consumer surplus increases FKP_e to FJP_1/ increases by P_eKJP_1
- Increased revenue for manufacturers
- Profit/ Producer surplus increases
- Reduces external cost/ environmental damage as compared with fuel
- One ship using the wind sail reduced emissions by 11.2 tonnes of CO_2 per day/ in one year equivalent to the removal of 480 cars from the road

NB Award maximum of Level 2 if no diagram included

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 • Opportunity costs as the money given to wind sail manufacturers cannot be spent on improving healthcare for the poor or spending on education • Wind sail manufacturers may become dependent on subsidies • Wind sail manufacturers may become complacent and less focused on cutting costs • New factories being built cause environmental damage • Magnitude of the subsidy is important- a lot is needed with so many container ships • Production may be capital intensive meaning few workers are employed • External benefits of additional employees spending in local businesses • Balance the job losses in fuel with the job creation at wind sail manufacturers • This was only a trial so the benefits may be larger or smaller • Subsidy costs the government $GHJP_1$ • With higher wind sail quantity- the fuel suppliers may suffer/decline • Employment in the fuel market may decrease	
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.

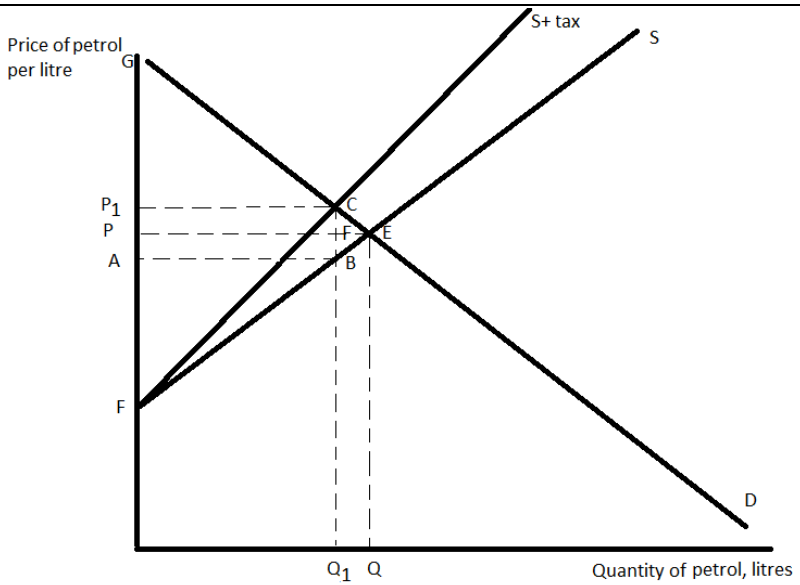
Question	Evaluate the economic effects of subsidising electric bicycles. Indicative content
13	**Indicative content guidance** Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates 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** • Definition of 'subsidy' – cash grant paid by the Government • Subsidy is €400 • Reduces the cost of production for electric bicycle manufacturers • Diagram showing the subsidy for electric bicycle manufacturers  • Originally the price paid by consumers was P_e but decreases to P_1 • Quantity of electric bicycles increases from Q_e to Q_1 • Consumer surplus increases from P_eEF to P_1CF. A change/ increase of P_eP_1CE - consumers benefit • Producer surplus increases from P_eEG to P_1CH • Government spending ACP_1P_2 • Consumer incidence BCP_1P_e • Producer incidence ABP_eP_2 • Profits generated by electric bicycle manufacturers may rise • Employment in electric bicycle manufacturers may rise • Encourage healthy lifestyles- cycling • Reduce the reliance on motor vehicles • Likely to lead to lower demand, price, quantity, producer surplus for motor vehicles • Leads to lower emissions and external costs associated with motor vehicles

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 • Size of subsidy is important. €400 is likely to cover most of the production costs so likely to have a large impact • Measurement – it is hard to measure what the ideal subsidy should be • May create government failure as over-investment in electric bicycles and resources wasted • Subsidy may make electric bicycle manufacturers- inefficient as reliant/ dependent on subsidy • May be better to increase consumption by giving information on the costs associated with motor vehicles and benefits of electric cycling. • Time frame – people may take a long time to adjust their behaviour • Opportunity costs - less funds available for other public services • Better to support subsidies of alternative fuel cars	
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 D

Question Number	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** • Indirect tax– expenditure tax • Ad valorem tax- defined • Specific tax- defined • Increases costs of production of firms selling petrol • Supply falls • Customers pay a higher price • The quantity consumed will be lower • Less external costs associated with petrol consumption/ production • People may buy in cheaper countries like Germany/ may lead to smuggling- Germany may benefit and the Netherlands lose out • Government failure if costs associated with intended consequences exceed benefits of reduced consumption • Incentive to substitute to hybrid/ electric/ hydrogen powered vehicles/ public transport/ bikes/ walking • Government revenue earned- can be used to fund improvements in public transport and roads • Increased demand for public transport • Impact on sectors reliant on road transport • Diagram may show ad valorem or specific tax



Impact on business

- Price received by the business is lower at A
- Quantity lower at Q_1
- Incidence of tax on producer per unit – AP/ Producer incidence ABFP
- Reduced producer surplus

Impact on consumers

- Price paid higher at P_1
- Incidence of tax on consumer per unit - PP_1/ consumer incidence $CFPP_1$
- Reduced consumer surplus

Impact on government

- Government revenue $ABCP_1$
- Funds that can be used elsewhere- e.g. roads

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 • Magnitude- 68% of the price charged is indirect tax- significant impact • Germany at just 59% may make it attractive to purchase in Germany but only for those close to border • Changed in behaviour to alternative fuels may take a very long term • Demand is likely to be highly inelastic so even if tax means higher price the quantity demanded will fall less than proportionately • Tax evasion/ avoidance may reduce tax revenues • Difficult to measure the correct indirect tax that should be charged • Electric cars may still be significantly more expensive than petrol cars so there will be little impact on the demand for petrol • Public transport is less convenient for the consumer leading to less consumer substituting • Depends on how significant petrol taxes are as a proportion of total business costs e.g. significant issue for logistics/delivery companies • Impact of the tax may affect those on different income levels differently

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 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

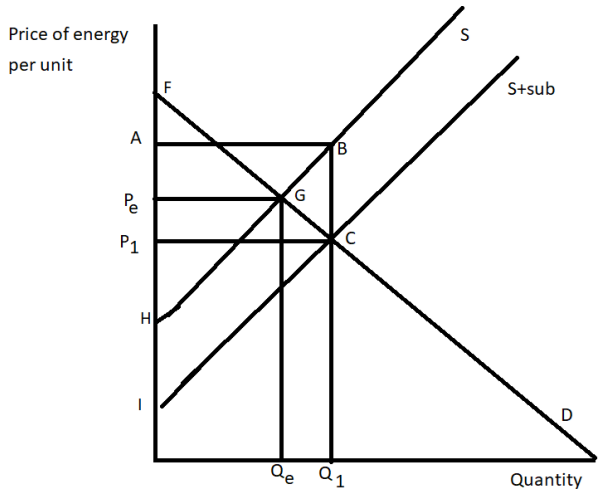
	When government failures is presented as microeconomic effects it should be rewarded as KAA but may alternatively be rewarded when offered as evaluation Positive effects may be offered as KAA and negative effects as Evaluation or vice versa Candidates should be rewarded for illustrating impacts using a diagram.	
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 Evaluation linked to stem • Measurement problem- difficult to measure the right level - 200 shillings may too high or low • Magnitude- sizeable tax so likely to have a large impact on reducing consumption- significant change • 200 shillings may not be a significant tax as a proportion of a persons income in Uganda • Might disadvantage certain groups with higher income groups finding it affordable but poorer groups struggling, some business people may have costs covered by employer	

	• Government revenue may be misused/misdirected • Impact on business costs reduces profits and tax paid to government • Impact on Facebook/Twitter/Instagram may not be significant if Ugandan market is relatively small • Impact depends on the elasticity of demand – if inelastic little change in mobile usage • No data provided on the minutes of mobile internet usage to see the true impact • Black market may emerge where people access mobile data illegally

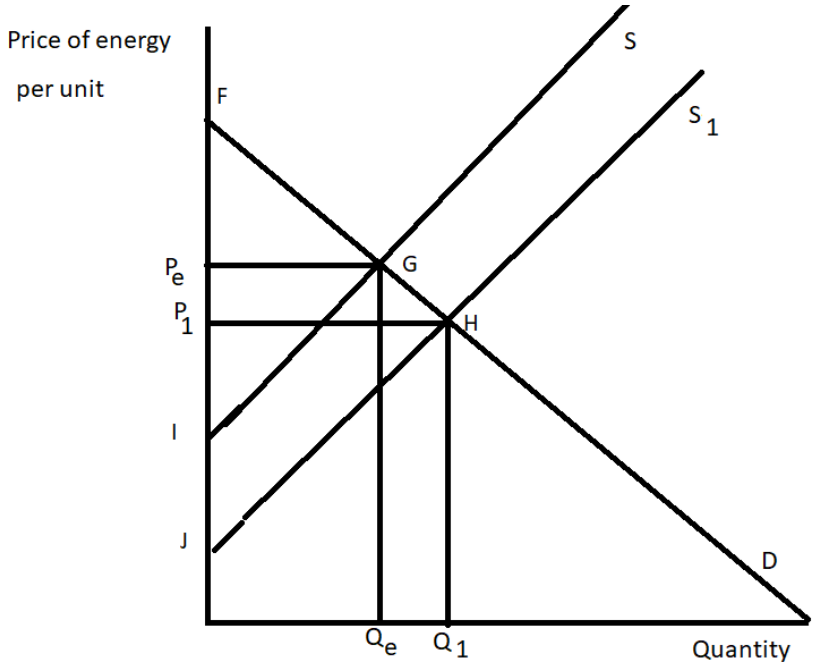
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	Identification of generic evaluative comments. No supporting evidence/reference to context. No evidence of a logical chain of reasoning.
Level 2	4–6	Evidence of evaluation of alternative approaches. Some supporting evidence/reference to context. 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.

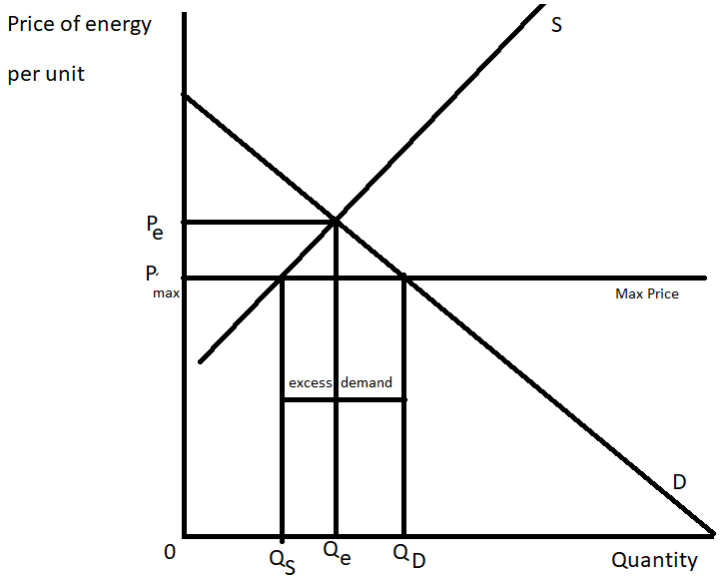
Question	In 2019, in Sweden, on average: • households saved 16.5% of their incomes • households borrowed 189% of their incomes • a consumer made 349 debit card payments With reference to the information above and your own knowledge, evaluate the role of financial markets in an economy. **Indicative content**
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** • Define financial markets- any market where financial products are traded • Roles of financial products include o To facilitate saving- 16.5% of income saved by households ▪ So that consumers can save for future purchases of consumer goods/luxury goods/expensive goods/save for emergencies ▪ So that producers can save for future purchases/capital goods/save for when they have cash flow problems ▪ So financial providers have funds to be able to lend to consumers and firms ▪ Without the financial sector providing funds to businesses they will struggle to buy capital goods to improve the business/households will spend a long time saving to be able to make large purchases such as housing/cars o To make funds available to businesses ▪ Enabling businesses to fund investment in capital goods to make them more productive o To make funds available to individuals - households borrow 189% of their income ▪ Enabling consumers to improve their living standards by being able to consume more consumer goods ▪ Enabling consumers to consume now and to then pay back in future o To facilitate the exchange of goods and services- 349 debit card payments per year ▪ Reducing the need for firms to hold large quantities of cash- which is expensive to handle for businesses ▪ Enabling purchases to be made online without the need for cash to be transferred ▪ Making it easier for consumers and producers to trade with each other quickly

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+sub ○ Decreases price charged to consumers P_e to P1 ○ 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 $ABCP_1$ 

- Decrease in indirect taxes- expenditure tax charged on consumption of energy
  - Spanish government
  - Lowers costs of production
  - Shifts supply to the right, S to S_1
  - 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 FHP_1
  - Producer surplus will increase GIP_e to HJP_1
  - Reduced tax revenue for the government



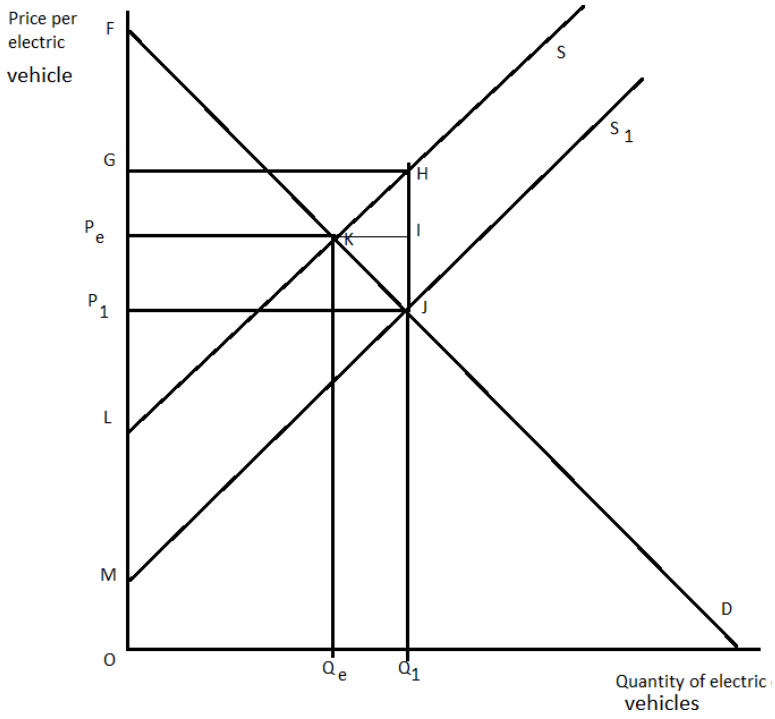
	• Maximum prices- price ceiling above which firms cannot charge ○ French government ○ Set below the market equilibrium price, at Pmax ○ Causes extension of demand due to lower prices, Q_e to Q_D ○ Risk that firms may contract supply- Q_e to Q_s / exit the market due to reductions in revenue and profits ○ May be excess demand/shortage ○ Consumer surplus will increase only if supply is maintained ○ Producer surplus may fall at lower price  Accept other relevant measures that help lower price or support consumers e.g. regulation, state provision, provision of information **NB Reward the best two measures only** **NB Maximum Level 3 if only one measure** **NB Maximum Level 3 if no relevant diagram drawn**

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 • Subsidies- ○ The impact on price depends on the size of the subsidy ○ Firm in receipt to subsidy may become complacent ○ If a long-term problem then subsidies needed for a long time ○ Subsidy represents an opportunity cost- money could be spent elsewhere ○ Information failure- government does not know the ideal level for the subsidy ○ Government failure- government intervention leads to a net welfare loss ○ Depends on the significance of price elasticity of demand- likely to be inelastic limiting the impact on change in quantity/resulting in a significant reduction in price ○ PES likely to be inelastic with little change in quantity/resulting in a significant reduction in price ○ With both supply and demand being inelastic, the impact on price is significant • Decrease in indirect taxation ○ Depends on the size of the tax decrease ○ Although the price should decrease no guarantee this will be passed on to consumers	

	○ If price increases are a long-time problem indirect tax will need to be available for an extended period ○ With higher market prices the government may earn more tax revenue despite lowering the tax rate ○ Information failure, therefore may not know the ideal rate of taxation ○ Government failure if it leads to net welfare loss ○ Depends on the significance of price elasticity of demand- likely to be inelastic limiting the impact on change in quantity ○ PES likely to be inelastic with little change in quantity ○ With both supply and demand being inelastic, the impact on price is significant • Maximum prices- ○ The maximum price will result in reduced profitability for suppliers resulting in some leaving the market causing supply issues in the future ○ Consumers may be worse off if they struggle to find a supplier ○ Government may face difficulty in setting the maximum price because of information gaps (government failure) ○ Unintended consequences may emerge (government failure) ○ Legislation likely to exist that prevents consumers losing supply ○ Value of PED and PES will impact the size of change in quantity • All measures lower prices and encourage consumption resulting in environmental damage • Candidates may consider the relative effectiveness of the measures offered Accept evaluation of other measures that reduce price or help consumers

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.



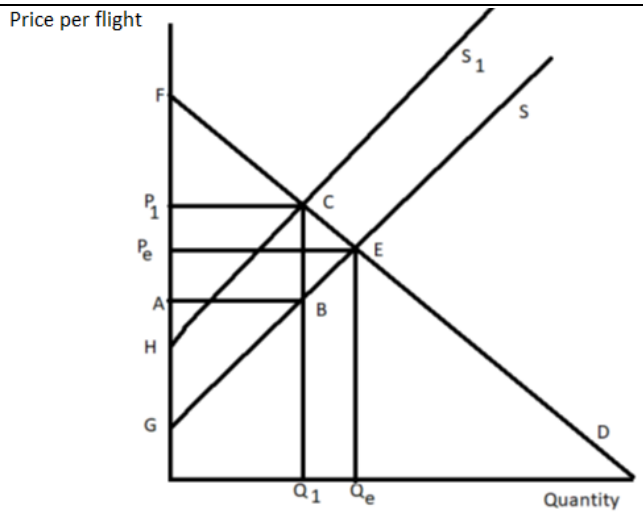
- Price of electric vehicles reduces P_e to P_1
- Quantity of electric vehicles increases Q_e to Q_1
- Subsidy costs the government $GHJP_1$
- Consumer subsidy P_eIJP_1
- Producer subsidy $GHIP_e$
- Consumer surplus increases FKP_e to FJP_1/ increases by P_eKJP_1
- Producer surplus increases
- With higher electric vehicle production- the diesel or petrol vehicle market may suffer/decline
- Employment in the diesel/petrol market may decrease
- General Motors experienced much lower costs, higher profit/producer surplus/invest more in USA
- More electric vehicles reduces environmental damage as compared with diesel/ petrol vehicles

NB Award maximum of Level 3 if no diagram included

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 • Opportunity costs as the $1 billion given to General Motors cannot be spent on improving healthcare for the poor or spending on education • If subsidies are paid to other electric vehicle manufacturers then the costs would be substantially higher • Electric vehicle manufacturers may become dependent on subsidies • Electric vehicle manufacturers may become complacent and less focused on cutting costs • Two new factories being built cause environmental damage • Is it fair on other vehicle manufacturers outside the USA that do not receive subsidies? • Magnitude of the subsidy is substantial- although General Motors still have to spend billions starting production at these factories • Production may be capital intensive meaning few people are employed • External benefits 4 000 additional employees spending in local businesses • Other indirect employment from suppliers to General Motors so more than 4 000 new jobs are created • Balance the job losses in petrol and diesel with the job creation at General Motors • Electric vehicles still need electricity to be generated and if this is generated using fossil fuels then environmental costs are higher than first thought	
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 likely impact of imposing indirect taxes on aeroplane flights to reduce carbon emissions. Include at least one relevant diagram in your answer. **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** • Definition of indirect taxation- expenditure tax • Specific tax/Ad valorem tax- ○ Increase costs of production ○ Shifts/pivots supply to the left, S to S_1 ○ Increased equilibrium price charged to consumers P_e to P_1 ○ Decreases equilibrium quantity of flights for consumers, Q_e to Q_1 ○ Reduced quantity of aeroplane flights will result in a reduction in fuel use and in total global carbon emissions. Therefore there will be a reduction in external costs ○ Tax revenue received by the government $ABCP_1$ ○ Use tax revenue to fund research into technology to reduce emissions/ fund alternatives ○ Producer surplus decreases/ airline/ airport profits fall ○ Consumer surplus decreases FEP_e to FCP_1



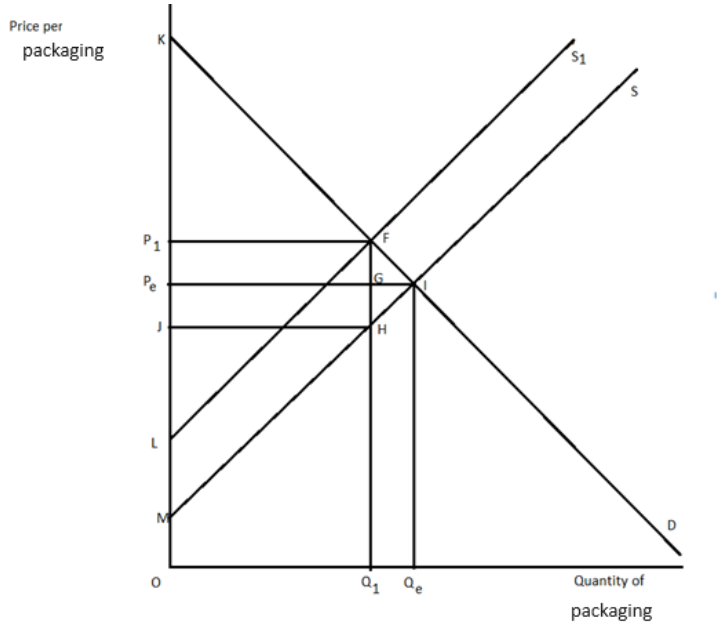
Accept ad valorem diagrams to illustrate the effects of the indirect tax
Accept externalities diagram to illustrate effects of indirect tax

NB Award maximum of Level 3 if no diagram is included
Level 4 requires at least two impacts
Advantages may be presented as KAA and disadvantages as EV or vice versa

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 • Depends on the size of the tax • Highly inelastic demand for flights means relatively small impact on quantity • Different effects on those travelling for business/leisure • Information failure- government may not know the ideal rate of taxation • Government failure- if it leads to net welfare loss • Any measures to reduce flights may be offset by increases in the number of people using cars or lorries. Therefore, there may be little reduction in external costs • Following the global health crisis, significant numbers have continued to work remotely-reduces the need to fly. Even without imposing indirect taxes the total number of aeroplane flights is likely to have fallen below 2019 levels. Therefore, global carbon emissions may already be below 2.5%	
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.

Pearson Education Limited. Registered company number 872828
with its registered office at 80 Strand, London, WC2R 0RL, United Kingdom

Question	Evaluate the microeconomic benefits of introducing a tax on plastic packaging. Illustrate your answer with a supply and demand diagram. **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** • Indirect tax- expenditure tax • Plastic packaging- causes environmental damage affecting wildlife, taking hundreds of years to decompose • Tax introduced on plastic packaging in Italy, Spain and UK • Plastic requires oil in its production, this results in more use of this non-renewable resource and is associated with environmental damage • Clearing up of plastics in the sea, on land, litter and in landfill uses resources  • Ad valorem or specific tax diagrams should be rewarded • As the costs of production rise causing supply curve to shift left • The quantity consumed decreases from Q_e to Q_1. Less packaging will be used • The tax revenue earned by the government will be $FGHJP_1$ • Producer incidence will be $GHJP_e$ • Consumer incidence will be FGP_eP_1 • Manufacturers may adjust the contents of the packaging to increase the percentage that is recycled

	• Reduction in external costs **Maximum of Level 3 with only 1 benefit** **Maximum of level 3 without a supply and demand diagram**	
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 • Magnitude- depends on the level of the tax set- if too low then little impact on behaviour of manufacturers • Plastic packaging may have highly inelastic demand resulting in little impact on quantity demanded- this is because plastic may better preserve food • Packaging manufacturers produce external benefits in terms of employment opportunities which may be reduced • Difficult to measure the size/value of external costs - so difficult to decide the level of tax to charge • Indirect taxes might result in government failure e.g. if they are set too high, information gaps, unintended consequences Related to diagram • The price of packaging increases from P_e to P_1, so consumers may pay more for goods • Consumer surplus decreases from KIP_e to KFP_1 • Producer surplus decreases • As quantity of plastic packaging decreases, employment may fall	
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.