Please check the examination details below before entering your candidate information

Candidate surname: StemUp Model Solution

Other names:

Pearson Edexcel
International Advanced Level

Centre Number | | | | | |

Candidate Number | | | | |

Tuesday 8 January 2019

Afternoon (Time: 1 hour 45 minutes)

Paper Reference **WEC11/01**

Economics

International Advanced Subsidiary
Unit 1: Markets in action

You must have:
Source Booklet (enclosed)

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **ALL** questions in Sections A, B and C.
- Answer **ONE** question in Section D.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*

Information

- The total mark for this paper is 80.
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*
- Calculators may be used.

Advice

- Read each question carefully before you start to answer it.
- Check your answers if you have time at the end.

Turn over ▶

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SECTION A

Answer ALL questions in this section.

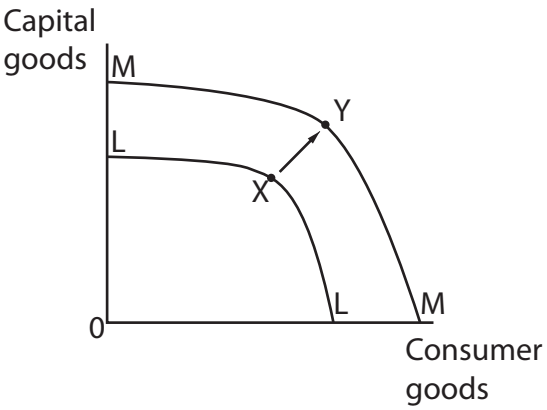
Questions must be answered with a cross in a box ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

1 The diagrams show the production possibility frontiers for Singapore's economy. It is operating at point X on the production possibility frontier LL.

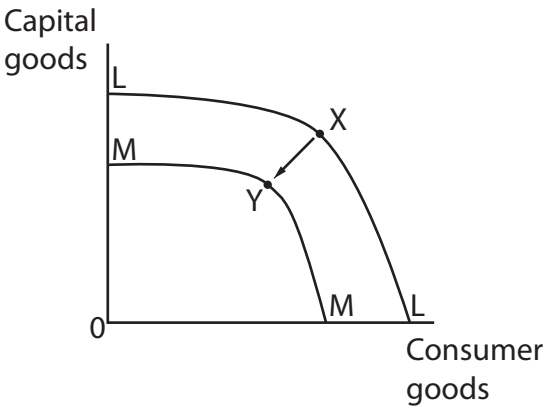
Singapore's population is expected to increase by 90 000 next year.

In which **one** of the diagrams does the movement from X to Y illustrate this expected increase in population if the economy still operates at its maximum productive potential?

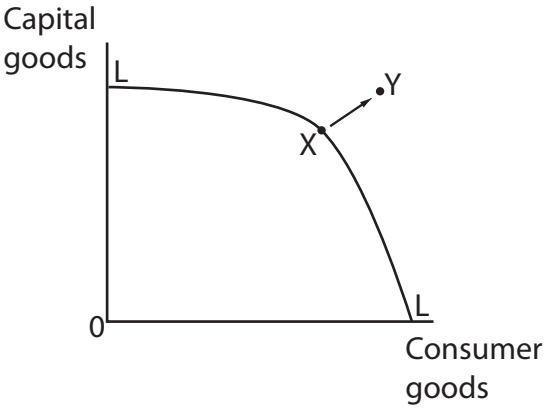
☒ **A**



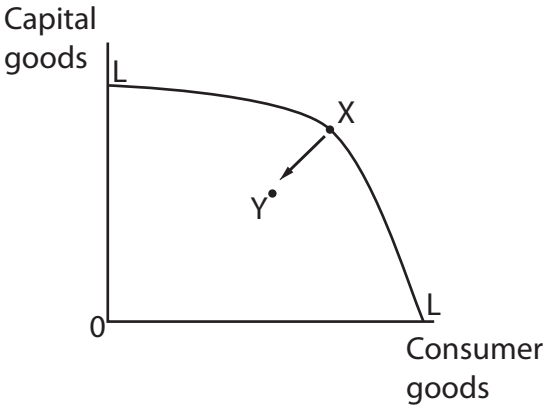
☒ **B**



☒ **C**



☒ **D**



(Total for Question 1 = 1 mark)

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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?

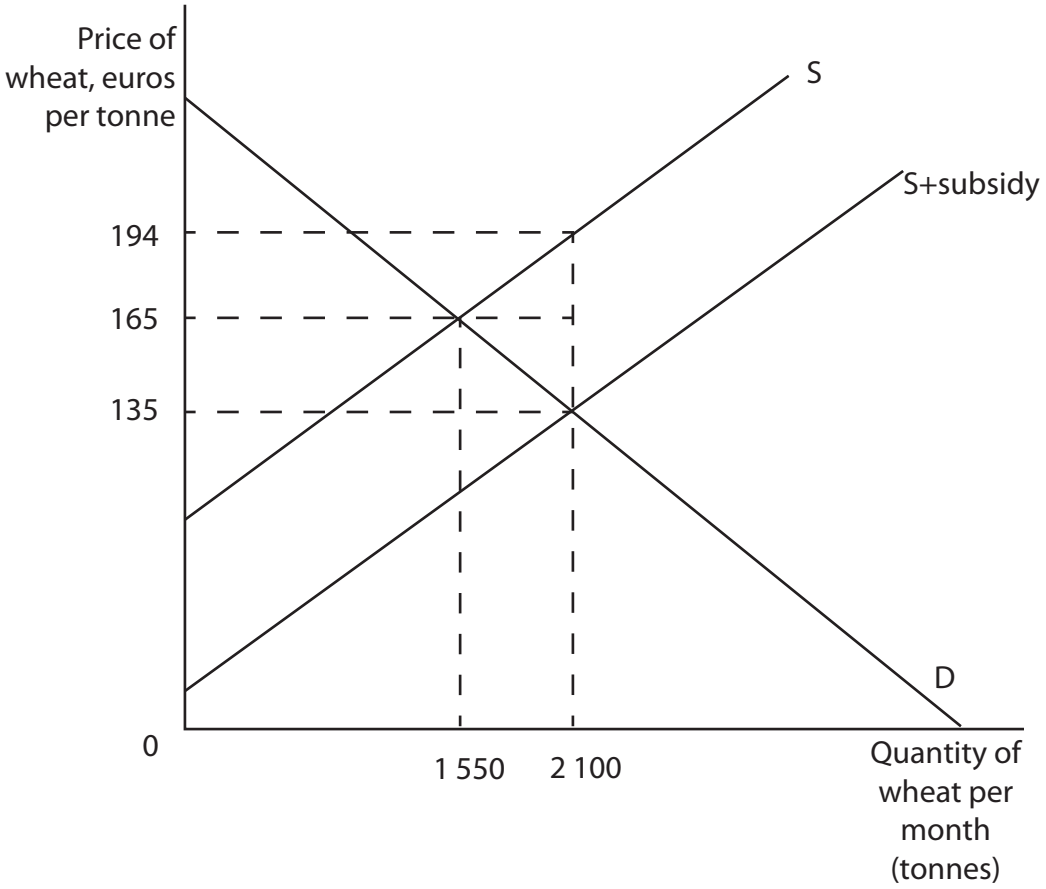
- ☒ **A** Excessive administrative costs involved in meeting environmental regulations.
- ☒ **B** A market bubble causing the price to rise excessively.
- ☒ **C** The existence of free riders leading to the under-production of public goods.
- ☒ **D** Under-production of foods with external benefits.

(Total for Question 3 = 1 mark)

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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?

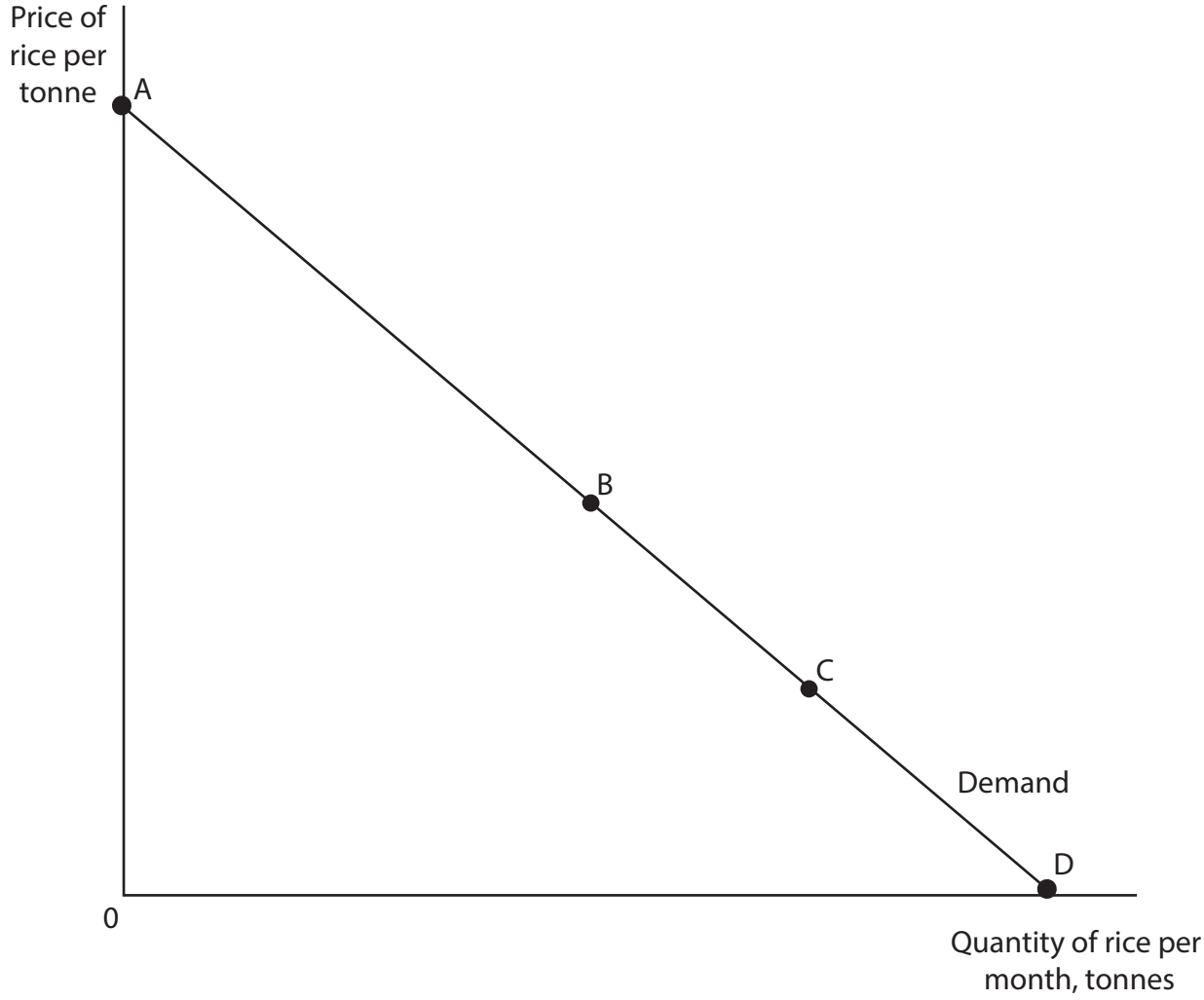
- ☒ **A** €60 900
- ☒ **B** €63 000
- ☒ **C** €123 900
- ☒ **D** €283 500

(Total for Question 4 = 1 mark)

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5 The diagram shows a demand curve for rice.



At which point on the demand curve will the price elasticity of demand be unitary?

- ☒ **A**
- ☒ **B**
- ☒ **C**
- ☒ **D**

(Total for Question 5 = 1 mark)

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6 The table shows the estimated income elasticity of demand for various goods and services in the USA.

Item	Estimates of income elasticity of demand
Cheese	-0.51
Public transport	-0.36
Ice cream	+0.83
Motor cars	+2.56

(Source: http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1102&context=agecon_cornhusker)

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

☒ **A** Cheese has relatively price inelastic demand.

☒ **B** Public transport is a normal good.

☒ **C** An increase in real income will result in a less than proportionate decrease in demand for ice cream.

☒ **D** A decrease in real income will result in a more than proportionate decrease in the demand for motor cars.

(Total for Question 6 = 1 mark)

TOTAL FOR SECTION A = 6 MARKS

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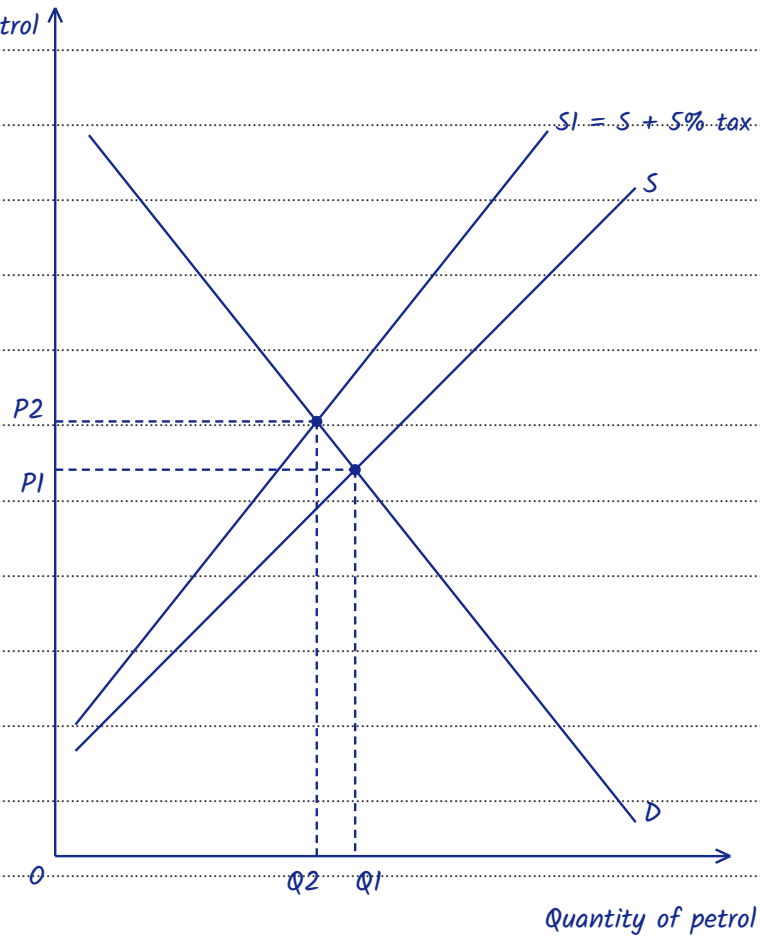
SECTION B

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.

An indirect tax is a tax on expenditure on goods and services. The 5% tax is ad valorem: it is a percentage of the price, so the tax per litre gets bigger as the price rises.



The tax raises firms' costs, so supply shifts left from S to S1. Because the tax is a percentage, S1 pivots away from S rather than shifting in parallel. The equilibrium price of petrol rises from P1 to P2 and the equilibrium quantity falls from Q1 to Q2.

(Total for Question 7 = 4 marks)

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8 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'.

The division of labour is where the production process is broken down into separate stages and each worker specialises in one specific task, rather than one worker building the whole product.

One benefit is higher labour productivity. With the Concept_One, one worker built each car from start to finish and only seven cars were made. In the new €30 million factory each worker repeats one task, such as fitting the windscreen or wiring the battery, so they become highly skilled at it, work faster and do not waste time changing tools or moving between jobs.

This means output per worker rises, allowing Rimac to manufacture 200 Concept_Two cars, about 28 times as many as before. Less training is also needed, as workers learn one task rather than every component of the car, so the average cost of producing each car falls, which helps Rimac compete in the electric car market.

(Total for Question 8 = 4 marks)

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9 Lake Poopó in Bolivia used to provide the local community with water to irrigate the quinoa fields. By 2017 there had been a 98% reduction in the size of the lake. The community could no longer use the lake for irrigation.

Explain whether Lake Poopó is a free good or an economic good.

A free good is a good that is so abundant that it is not scarce, so using it has no opportunity cost (for example, air). An economic good is scarce relative to demand, so using it has an opportunity cost and people may be willing to pay for it.

In the past, Lake Poopó provided plenty of water for the local community to irrigate its quinoa fields. When water was so abundant, one farmer using it did not reduce the water available to others, so it could have been seen as close to a free good.

However, by 2017 the lake had shrunk by 98%, so it is now only 2% of its former size and the community can no longer use it for irrigation. Water from the lake is now scarce: any water used for one purpose, such as drinking, cannot be used for another, such as growing quinoa, so there is an opportunity cost. Therefore Lake Poopó is an economic good.

(Total for Question 9 = 4 marks)

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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	*New quantity demanded per week*
¥10	700	200	*800*
¥11	600	300	*700*
¥12	500	400	*600*
¥13	400	500	*500*
¥14	300	600	*400*

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.

Equilibrium is the price where quantity demanded equals quantity supplied, so there is no excess demand or excess supply.

After the advertising campaign, demand rises by 100 bottles at every price (last column):

¥11: new Qd = 600 + 100 = 700, Qs = 300 ⇒ excess demand of 400

¥12: new Qd = 500 + 100 = 600, Qs = 400 ⇒ excess demand of 200

¥13: new Qd = 400 + 100 = 500, Qs = 500 ⇒ Qd = Qs

¥14: new Qd = 300 + 100 = 400, Qs = 600 ⇒ excess supply of 200

New equilibrium price = ¥13 per bottle (500 bottles bought and sold per week)

(Total for Question 10 = 4 marks)

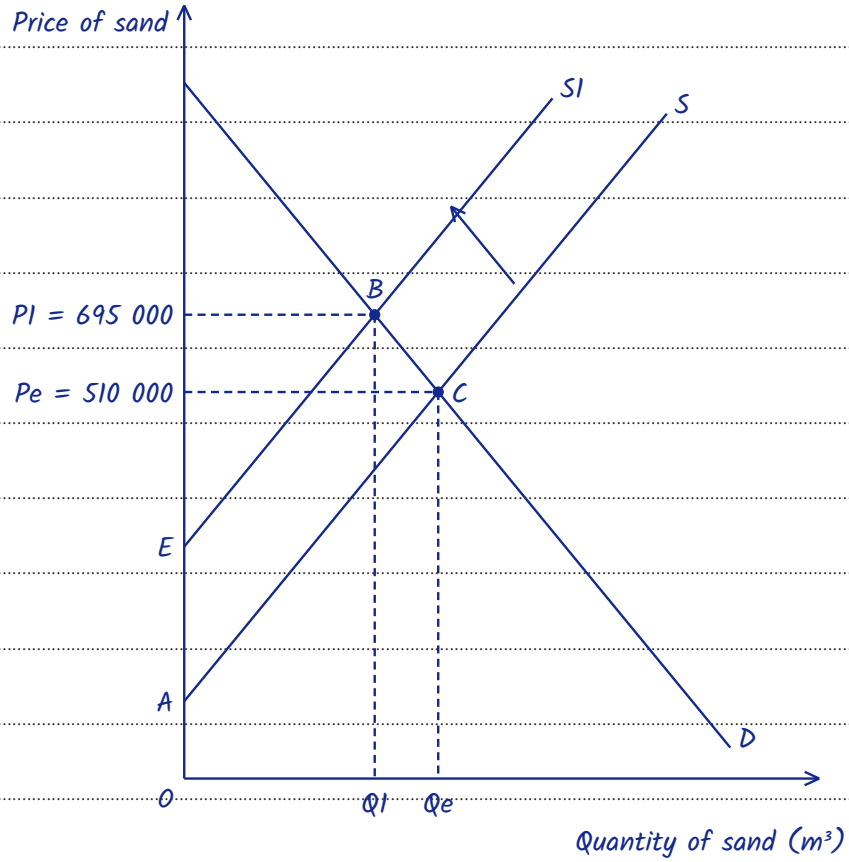
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11 In Ho Chi Minh City, Vietnam, the price of sand increased from VND510 000 to VND695 000 per cubic metre between April and May 2017. This was caused by reduced supply from Vietnamese mining companies.

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

Producer surplus is the difference between the price producers receive for a good and the lowest price they would be willing to accept, shown by the area above the supply curve and below the price.



Reduced supply from mining companies shifts supply left from S to SI, so the price rises from VND510 000 to VND695 000 per m³ and quantity falls from Qe to QI. Producer surplus changes from area ACPe to area EBPI. Although firms get a higher price, they sell fewer units at higher costs, so producer surplus falls overall.

(Total for Question 11 = 4 marks)

TOTAL FOR SECTION B = 20 MARKS

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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)

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

(2)

Substitutes are goods that meet the same need, so consumers can switch demand from one to the other. They have a positive cross elasticity of demand: a rise in the price of tea increases the demand for cocoa.

(b) With reference to Extract A, explain **one** factor that is likely to influence the price elasticity of supply for cocoa beans.

(4)

Price elasticity of supply (PES) measures the responsiveness of quantity supplied to a change in price: PES = % change in quantity supplied ÷ % change in price. Supply is price inelastic when PES is between 0 and 1, so quantity supplied changes by a smaller percentage than price.

One factor is the time it takes to increase production. Cocoa trees take four to five years to mature and produce cocoa pods, so if the price of cocoa rises, farmers cannot quickly increase output: new trees planted today will not produce cocoa for years. Also, cocoa only grows well in regions near the equator, so very few countries can enter the market. This makes the supply of cocoa beans price inelastic, especially in the short run.

However, stocks of cocoa were 27.3% higher in 2017 than in 2016, so if the price rose, cocoa could be released from these stocks, which would make supply more price elastic in the short run.

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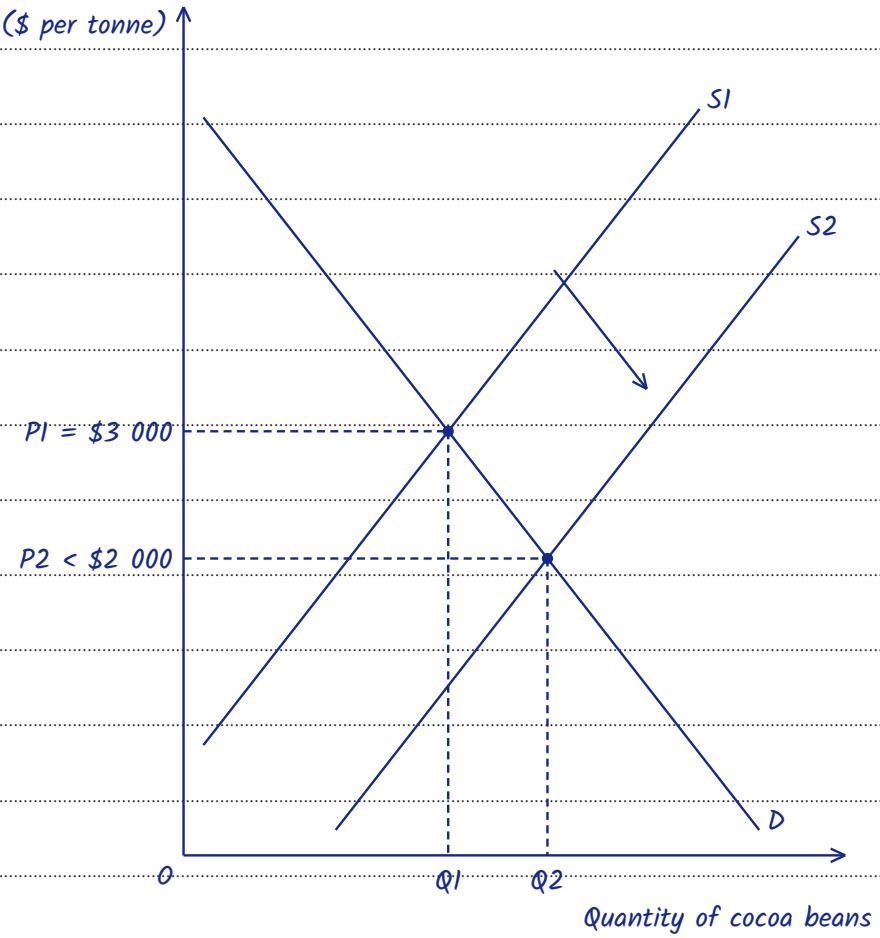
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(c) With reference to Figure 1 and Extract A, analyse **one** reason why the price of cocoa beans 'fell below $2 000 per tonne' (Extract A, line 8) in April 2017.

Illustrate your answer with a supply and demand diagram.

(6)

Figure 1 shows the price of cocoa beans was about $3 000 per tonne in August 2016 but fell to just below $2 000 per tonne by April 2017, a fall of over 33%. One reason is an increase in supply, shown by the shift from S1 to S2.



In 2017 production in the Côte d'Ivoire rose from 1.45 million tonnes to 1.93 million tonnes, an increase of 33%, because many new cocoa trees planted four to five years earlier matured at the same time. Together with good harvests, this meant that at every price more cocoa was supplied, so supply shifted to the right from S1 to S2. The new trees also meant growers could supply more cocoa at a lower cost per tonne.

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At the original price P1 there was now excess supply, and stocks of cocoa were 27.3% higher than in 2016. To sell this surplus, sellers had to cut their prices, so there was downward pressure on the price until a new equilibrium was reached at P2 and Q2, with the price below $2 000 per tonne. Because demand for cocoa is price inelastic, a large fall in price was needed to clear the extra supply.

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

(8)

External costs are negative effects of production on third parties who are not involved in the transaction and are not compensated. They mean the marginal social cost (MSC) of producing cocoa is greater than the marginal private cost (MPC) to the farmer, so cocoa is over-produced.

One external cost is deforestation. Because old trees give lower yields, farmers clear rainforest to start new plantations, and in Indonesia rainforest has fallen from 30% to about 15% of the land. Fewer trees absorb less carbon dioxide, which adds to climate change, and the loss of habitat reduces biodiversity, so species may be lost along with possible future medicines and cures. These costs fall on people around the world, not on the cocoa farmers.

A second external cost is pollution. To increase production some farmers use fertilisers that run off into rivers. This harms fish stocks, so the fishing industry downstream catches less and loses income, and communities that rely on the river for water may face health problems and higher costs of cleaning the water. Soil erosion from growing too much cocoa also makes land less fertile for future users.

However, the size of these external costs is difficult to measure, as it is hard to put a money value on lost biodiversity or on damage that may only appear years later. The magnitude also depends on how much cocoa is produced and how it is farmed. The Rainforest Alliance trains farmers to manage their trees without damaging the environment, and the share of cocoa from its farms rose from 2% to 16% between 2009 and 2015, so in the long run external costs per tonne may fall.

The external costs should also be weighed against the benefits of cocoa production, as it

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provides profits for farmers and jobs and incomes in poor rural areas, which are then spent locally. Overall, deforestation is the most significant external cost because the loss of rainforest and biodiversity is global and largely irreversible, while river pollution is more local and could be reduced by better training of farmers.

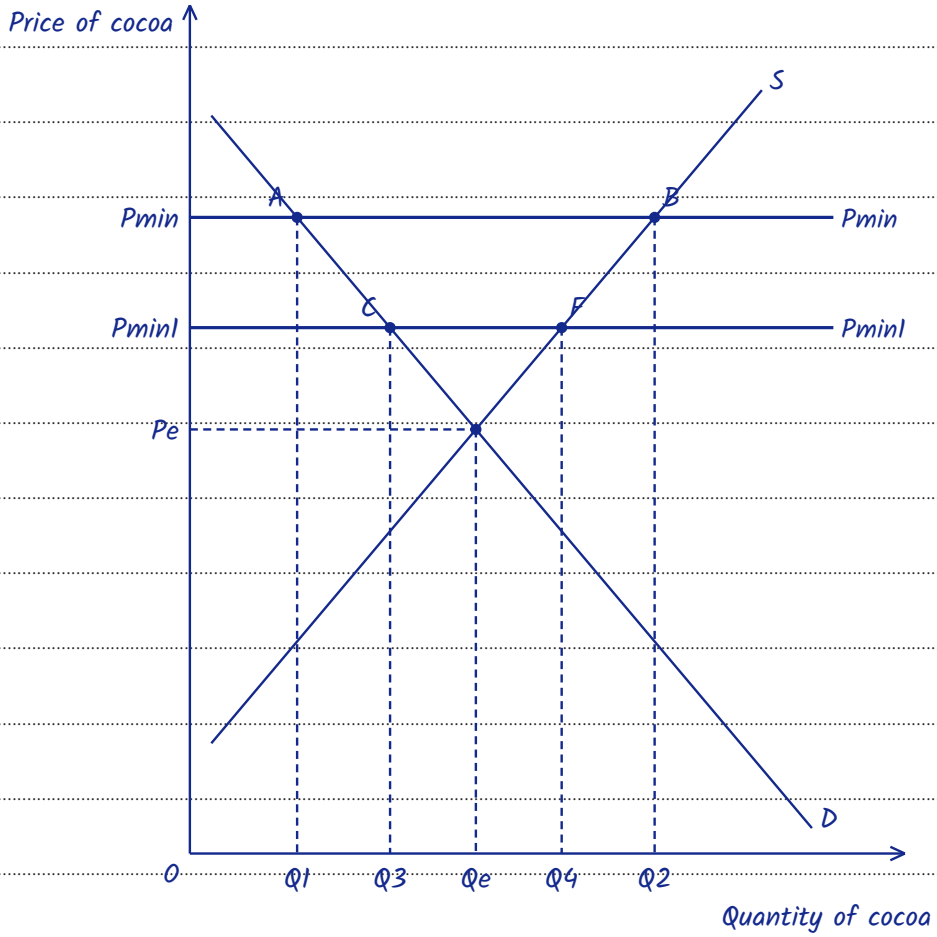
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(e) With reference to Extract C, discuss the likely effects of the reduction in the minimum (guaranteed) price for cocoa.

Illustrate your answer with an appropriate diagram.

(14)

A minimum (guaranteed) price is a price floor set by the government above the equilibrium price, below which cocoa cannot be sold. The Côte d'Ivoire Government guarantees to buy any cocoa that is not sold at this price, to protect farmers from very low prices and support their incomes.



Originally the minimum price was Pmin, where consumers demanded Q1 but farmers supplied Q2, creating excess supply of Q2 – Q1. The Government had to buy this surplus, costing area ABQ2Q1, and pay to store it. In 2017 it cut the minimum price by 36% to PminI. Quantity demanded extends from Q1 to Q3, as chocolate makers buy more cocoa at the lower price, and quantity supplied contracts from Q2 to Q4, as some farmers produce less. Excess supply falls to

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Q4 – Q3, so government spending falls to area CFQ4Q3. This meets the Government's aims of cutting spending and reducing cocoa stocks, and the money saved could be spent on healthcare, education or infrastructure instead.

Consumers of cocoa, such as chocolate manufacturers, also gain because they pay a lower price, so consumer surplus increases. Lower cocoa costs could be passed on in lower chocolate prices, or make Côte d'Ivoire cocoa more competitive in world markets.

However, cocoa farmers lose out. They receive a 36% lower guaranteed price and sell less, so their revenue falls from 0PminBQ2 to 0Pmin1FQ4 and producer surplus falls. Many cocoa farmers are poor, so this may push them into poverty, and some may leave the industry or cut spending on replanting old trees, which could reduce output in future years. This loss to farmers is a large part of the cost of the policy.

The size of these effects depends on price elasticities. Demand for cocoa is likely to be price inelastic, so the extension in demand from Q1 to Q3 may be small. Supply is also price inelastic in the short run, because cocoa trees take four to five years to mature and farmers have already planted them, so quantity supplied will hardly fall. This means excess supply, and so government spending, may fall by less than expected, while farmers' incomes fall by almost the full 36%.

The effect may also be smaller than it looks because the minimum price was already breaking down. Extract C states that some farmers still sell cocoa below the minimum price, because private buyers pay them more quickly than the Government. If the guarantee was not being enforced, cutting it changes little in practice. In addition, the world price of cocoa fell below $2 000 per tonne in April 2017 (Figure 1), so the gap between the market price and the new minimum price may not have changed much. If world prices recover above Pmin1, the minimum

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price would become non-binding and have no effect.

There may also be a wider benefit. A lower guaranteed price reduces the incentive to over-produce cocoa, so fewer farmers would clear rainforest for new plantations, reducing the external costs described in Extract B. However, it is difficult to measure what the ideal minimum price should be, and if it is set too low, farmers may switch to other crops and future supply may fall sharply.

In conclusion, the reduction in the minimum price is likely to reduce excess supply, government spending and stocks, and to benefit buyers of cocoa, but at the cost of lower incomes for poor farmers. Because the cut is large at 36% but supply is price inelastic in the short run, the main short-run effect is likely to be a fall in farm incomes rather than a large fall in the surplus. The overall effect depends on whether the scheme is enforced and on future world cocoa prices.

(Total for Question 12 = 34 marks)

TOTAL FOR SECTION C = 34 MARKS

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SECTION D BEGINS ON THE NEXT PAGE.

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SECTION D

Answer ONE question from this section.

Write your answer in the space provided.

EITHER

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

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

(Total for Question 13 = 20 marks)

OR

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

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

(Total for Question 14 = 20 marks)

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

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

Write your answer here:

Traditional economic theory assumes consumers are rational and aim to maximise their utility. A rational consumer would compare the costs and benefits of switching energy supplier and switch whenever the benefit is greater. Switching could save up to £200 a year, which could be spent on other goods and services to increase utility, yet in 2016 50% of UK gas and electricity consumers had never switched. This suggests many consumers are not acting rationally, and there are several reasons for this.

The first reason is habitual behaviour and inertia. Consumers have used the same supplier for many years, so staying with them has become a habit and they become loyal to the brand. Searching for and comparing tariffs, filling in forms and arranging the transfer takes time and effort, so many consumers put it off. Because the £200 saving is in the future while the effort is needed now, they keep delaying and never switch, even though switching would make them better off.

However, the strength of inertia depends on how easy switching is. Price comparison websites and government regulators have made it much simpler to compare tariffs and switch online in a few minutes, which lowers the effort involved. Over time, as consumers see others switching and saving, habits may weaken, so inertia may be a short-term rather than a permanent reason.

A second reason is imperfect and asymmetric information. Energy tariffs are complex, with different standing charges, unit prices, fixed and variable deals and exit fees, and suppliers know far more about their prices than consumers do. Consumers face bounded rationality: they have

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limited time and some have poor computational skills, so they cannot work out whether they would actually save money. Unable to calculate the gain, they stick with what they know. This is a form of market failure, as resources are not allocated to the cheapest suppliers.

On the other hand, the £200 is only the maximum saving, "up to" £200, so many consumers would save much less. For wealthier households, energy bills are a small proportion of income, so a saving of perhaps £50 a year is not worth the time and effort. For these consumers, not switching may actually be a rational decision once the opportunity cost of their time is included. The magnitude of the saving relative to the total bill is therefore crucial.

A third reason is the influence of other people's behaviour, or herding. If friends and family use the same supplier and have never switched, consumers feel it is normal not to switch and copy them. Consumers may also trust a large, well-known supplier more and value its customer service, so they are willing to pay a higher price for reliability. Large suppliers reinforce this by spending heavily on advertising and branding, and some offer loyalty schemes that make customers feel valued.

However, herding can also work the other way: as more people switch and recommend new suppliers, others may follow, and the fact that 50% of consumers have switched shows the herd is not all staying put. Trust in a big supplier may also be misplaced if smaller suppliers offer the same gas and electricity through the same pipes and wires.

A fourth reason is switching costs and risk aversion. Some consumers are on fixed-term contracts with exit fees, so they must wait or pay to leave, which reduces the net saving. Others fear that the switch will not go smoothly, for example that they may be billed twice or have their supply interrupted, so they avoid the risk even though problems are rare. People tend

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to weigh possible losses more heavily than equal gains, so the fear of a bad experience outweighs the £200 saving.

The importance of this depends on the time period. In the short run contracts and exit fees prevent switching, but in the long run contracts end, so consumers are free to move. Governments can also reduce the need to switch by placing a maximum price (price cap) on default tariffs, which protects consumers who do not switch but also weakens the incentive to do so.

In conclusion, the most significant reasons why consumers do not switch are inertia and imperfect information, as these affect the majority of the 50% who have never switched, especially older and lower-income consumers who would benefit most. Herding and switching costs reinforce these effects. However, for some higher-income consumers not switching may be rational, as the saving is small compared with their income and the time it takes. The problem is likely to fall over time as comparison websites, simpler bills and government rules make switching easier, but because the causes are behavioural rather than purely financial, information alone may not be enough and some consumers will always stay with their existing supplier.

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TOTAL FOR SECTION D = 20 MARKS
TOTAL FOR PAPER = 80 MARKS

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Economics

International Advanced Subsidiary
Unit 1: Markets in action

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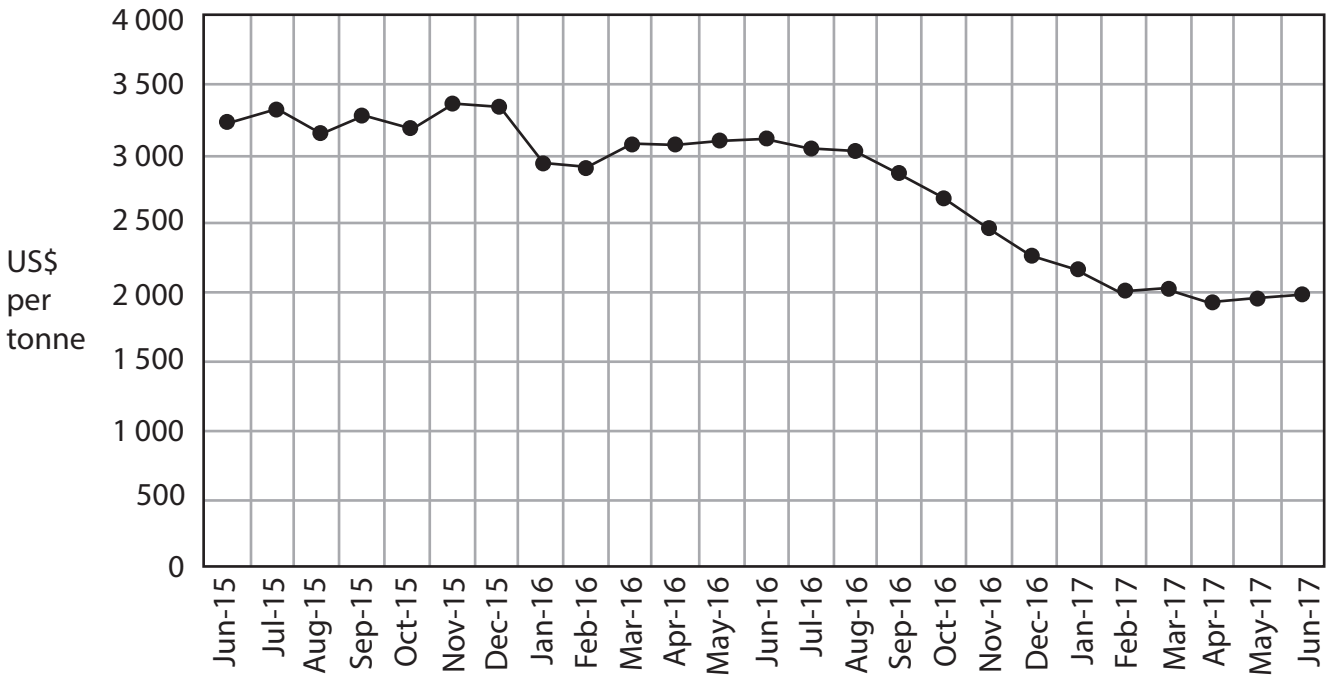
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Sources for use with Section C.

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.

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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.

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Acknowledgements

Figure 1 based on data taken from http://www.indexmundi.com/commodities/?commodity=cocoa-beans&months=60;

Extract A adapted from 'Cocoa prices to stay low in short term even as chocolate markets are strong' 29 August 2017, Oliver Nieburg, https://www.confectionerynews.com/Article/2017/08/29/Cocoa-prices-to-stay-low-even-as-chocolate-markets-strong;
http://www.smallstarter.com/browse-ideas/how-to-start-a-cocoa-production-business-in-africa-for-the-global-chocolate-market/

Extract B adapted from 'Chop, chop: Cocoa dependents must finance farm training before more forests are axed' Oliver Nieburg, 29 April 2015 http://www.confectionerynews.com/Commodities/What-is-the-environmental-impact-of-cocoa-production?utm_source=copyright&utm_medium=OnSite&utm_campaign=copyright;

Extract C adapted from 'Ivory Coast cocoa farmers sell below base price amid slump' Ange Aboa, 25 May 2017, http://af.reuters.com/article/topNews/idAFKBN18L1UX-OZATP

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