

## A-level ECONOMICS

Paper 3 Economic principles and issues

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Insert

**DO NOT WRITE ANY ANSWERS IN THIS INSERT. YOU MUST ANSWER THE QUESTIONS IN THE ANSWER BOOKLET PROVIDED.**

**The World Energy Market**

**Questions 31 to 33**

- **Extract A:** What is OPEC?
- **Extract B:** The market for energy is changing
- **Extract C:** Trends in the world market for energy
- **Extract D:** Falling oil prices hit the oil-exporting countries hard
- **Extract E:** Crisis? What crisis?

### Extract A: What is OPEC?

OPEC is an organisation of 13 oil-producing countries. In 2015, OPEC accounted for an estimated 42% of global oil production and 73% of the world's 'proven' oil reserves, enabling OPEC to influence the price of oil. The current members of OPEC are: Algeria, Angola, Ecuador, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates and Venezuela.

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OPEC is often cited as a classic example of a cartel, a group of independent producers who collude to increase their collective profits by limiting supply to raise prices. However, OPEC's power is reduced by the expansion of non-OPEC energy sources and by the temptation for individual OPEC countries to exceed production ceilings.

Source: News reports, April 2017

### Extract B: The market for energy is changing

The energy industry is going through a period of profound change. Concerns about carbon emissions and global warming have led to policies that are shifting production away from coal towards natural gas and renewable energy. On the demand side, weaknesses in the global economy have meant that energy consumption has only grown slowly, but that will change if global economic growth picks up. The supply of energy has been affected by technological advances that have altered the range, availability and relative cost of producing different fuels. In the US, the shale revolution, allowing oil and gas to be extracted from shale by fracking, has opened up vast, new supplies of these fossil fuels. Other improvements in technology have stimulated growth in the output of renewable energy, particularly wind and solar power. The flip side of this is a fall in the demand for coal.

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10

Changes in the supply and demand for different fuels have significant effects on relative prices. Price changes play a key role in promoting adjustments in energy markets which affect the pattern of consumption and investment in energy.

Source: News reports, April 2017

### Extract C: Trends in the world market for energy

**Figure 1** Energy consumption by fuel, million tonnes

	<b>2006</b>	<b>2009</b>	<b>2012</b>	<b>2015</b>	<b>2016</b>
Oil	3 984	3 956	4 176	4 341	4 418
Natural gas	2 573	2 676	2 997	3 147	3 204
Coal	3 294	3 476	3 817	3 785	3 732
Nuclear energy	635	614	559	583	592
Hydroelectricity	688	737	832	883	910
Other renewables	93	144	239	367	420
<b>Total</b>	<b>11 267</b>	<b>11 603</b>	<b>12 620</b>	<b>13 106</b>	<b>13 276</b>

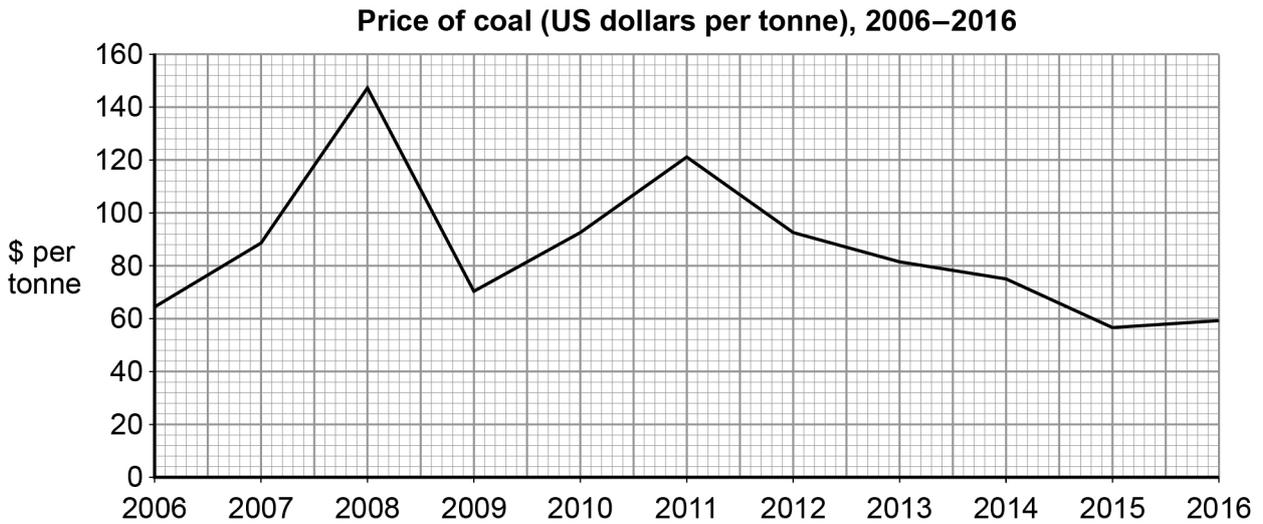
Note: Oil consumption is measured in million tonnes; other fuels in million tonnes of oil equivalent  
 Oil, natural gas and coal are fossil fuels  
 Other renewables include energy generated from the following renewable sources: wind, solar, geothermal, biomass and waste

Source: BP statistical review of world energy 2017

**Figure 2** Average cost of producing oil (US dollars per barrel), March 2016

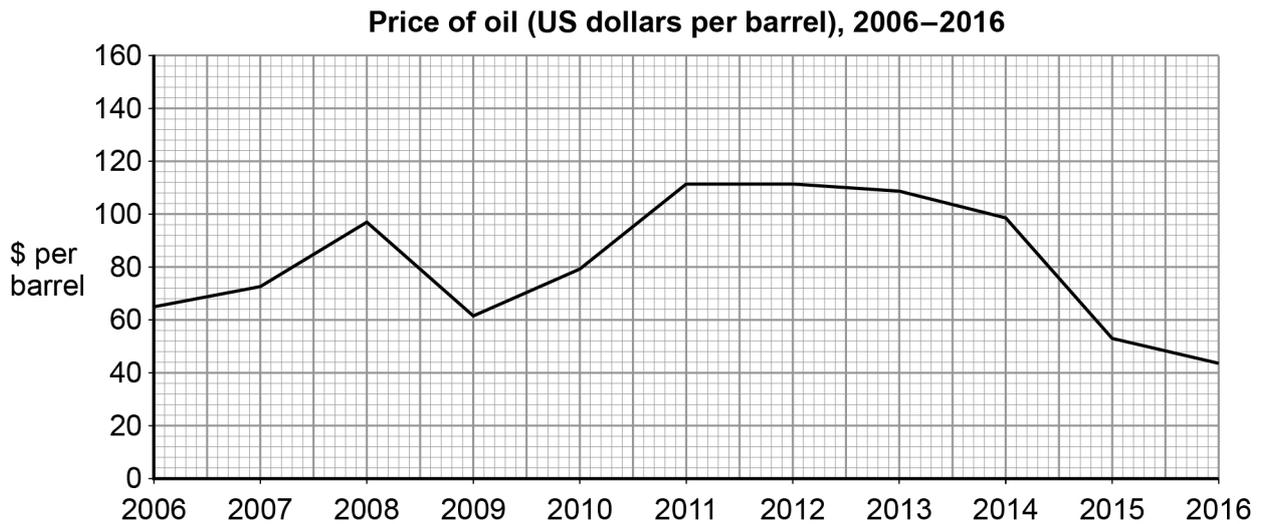
	Cost (\$)
UK	44.33
Nigeria	28.99
Venezuela	27.62
US shale	23.35
US non-shale	20.99
Saudi Arabia	8.98

**Figure 3** The price of coal



Source: BP statistical review of world energy 2017

**Figure 4** The price of oil



Source: BP statistical review of world energy 2017

## Extract D: Falling oil prices hit the oil-exporting countries hard

In 2014, despite the rapid fall in the price of oil, Saudi Arabia and the other OPEC countries did not cut production. Some believe that they wanted to make shale oil production in the US unprofitable to weaken a growing threat to OPEC's domination of the world oil market.

A fall in oil prices leads to a contraction of the oil sector in oil-exporting countries and also has other effects on their economies. For example, in the Middle East and North Africa, oil-based revenues often account for more than half of government revenue. A significant loss of government revenue may require a substantial reduction in public spending. A decline in oil prices reduces export revenues, leading to a deterioration in the current account of their balance of payments, usually causing a depreciation in their exchange rates. This is an important mechanism through which the economy can adjust, but it makes imports more expensive, adds to inflationary pressures and is likely to reduce living standards. It may also make it difficult to attract capital inflows and to finance both the balance of payments and budget deficits. 5 10

The Nigerian economy has been hit hard by low oil prices and falling oil production. The country went into recession in 2016, with real national income contracting by 1.5%. The annual inflation rate doubled to 18.6%, reflecting the weakness of the Nigerian currency. Even after cuts in capital spending, the budget deficit increased from 3.5% of GDP in 2015 to 4.7% of GDP in 2016. 15

Venezuela derives over 95% of its export earnings and almost half of government revenue from oil-related sectors. Falling oil prices aggravated Venezuela's economic crisis and it is estimated that the economy contracted by 10% in 2016 after a similar fall in real GDP in 2015. In 2016, its inflation rate was around 275%. Worsening shortages of food, medicines and other consumer goods are a symptom of the country's very fragile economy. Deteriorating public finances mean that Venezuela is a high-risk debtor, making it hard for the country to attract foreign capital. These difficulties are not all down to the fall in the price of oil. Nevertheless, a fall in the oil price makes it harder to deal with problems that are common to many less economically developed countries. 20

Source: News reports, April 2017

## Extract E: Crisis? What crisis?

In December 2016, the members of OPEC and 11 non-OPEC countries, including Russia, agreed to cut production to 'stabilise' the oil market and raise prices. The initial agreement was for six months but has since been extended for a further nine months. So far, compliance with the production cuts has been very high at 90% and oil prices have stabilised.

The fall in the price of oil has driven some US fracking companies out of business but it has not been as damaging as predicted. Many companies have learnt how to extract more shale oil from each rig, reducing the cost per barrel. Increases in productivity reduce the break-even price of extracting oil from shale by fracking. If oil prices rise, output and investment in the industry are likely to increase again. 5

Recently, growth in the world economy has picked up. This will boost the demand for oil and put upward pressure on oil prices. In the long run, developments in technology that lower the cost of supplying renewable energy and producing electric cars, buses and lorries will reduce the demand for oil. A high price for oil should incentivise such developments. 10

Source: News reports, June 2017

## END OF EXTRACTS



Please write clearly in block capitals.

Centre number

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Candidate number

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Surname

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Forename(s)

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Candidate signature

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# A-level ECONOMICS

## Paper 3 Economic principles and issues

Friday 15 June 2018

Morning

Time allowed: 2 hours

### Materials

For this paper you must have:

- the insert
- a calculator.

### Instructions

- Answer **all** questions.
- Use black ink or black ball-point pen. Pencil should only be used for drawing.
- Fill in the boxes at the top of this page.
- You will need to refer to the insert provided to answer **Section B**.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this answer book. Cross through any work that you do not want to be marked.

### Information

- The maximum mark for this paper is 80.
- The marks for questions are shown in brackets.
- No deductions will be made for wrong answers.

For Examiner's Use	
Section	Mark
A	
B	
<b>TOTAL</b>	



J U N 1 8 7 1 3 6 3 0 1

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## Section A

*Do not write  
outside the  
box*

Answer **all** questions in this section.

Only **one** answer per question is allowed.

For each answer completely fill in the circle alongside the appropriate answer.

CORRECT METHOD



WRONG METHODS



If you want to change your answer you must cross out your original answer as shown. 

If you wish to return to an answer previously crossed out, ring the answer you now wish to select as shown. 

**0 1** Which one of the following applies to merit goods?

- A** Their marginal private benefit is greater than their marginal social benefit.
- B** They are likely to be provided by the market.
- C** They can only be supplied by the government.
- D** They have the characteristics of non-excludability and non-rivalry.

**[1 mark]**

**0 2** At the start of the financial year, an economy's national debt stands at £1000 billion. Over the course of the year, the government plans to spend an extra £100 billion and borrow an extra £40 billion.

If the government achieves its spending and borrowing targets, by the end of the financial year the national debt will have increased by

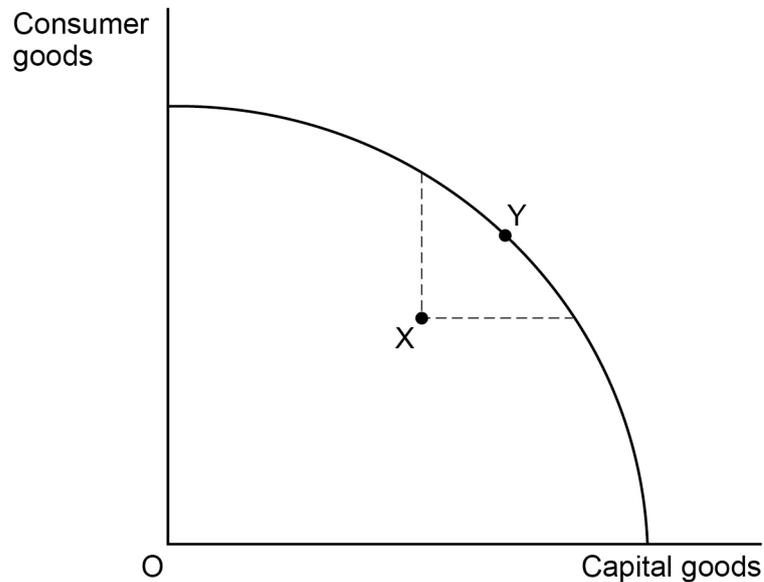
- A** 4%
- B** 10%
- C** 14%
- D** 40%

**[1 mark]**



0 3

The diagram below shows the production possibility frontier for an economy that produces consumer goods and capital goods. The economy is initially operating at point X within its frontier.



If the economy now moves from point X to point Y on its frontier it will

- A** achieve both productive and allocative efficiency.
- B** benefit from improved economies of scale in the production of both goods.
- C** increase its underlying trend rate of growth.
- D** obtain more consumer goods and capital goods at zero opportunity cost.

[1 mark]

0 4

All other things being equal, an increase in the ratio of capital to labour resulting from an increase in investment is most likely to lead to a

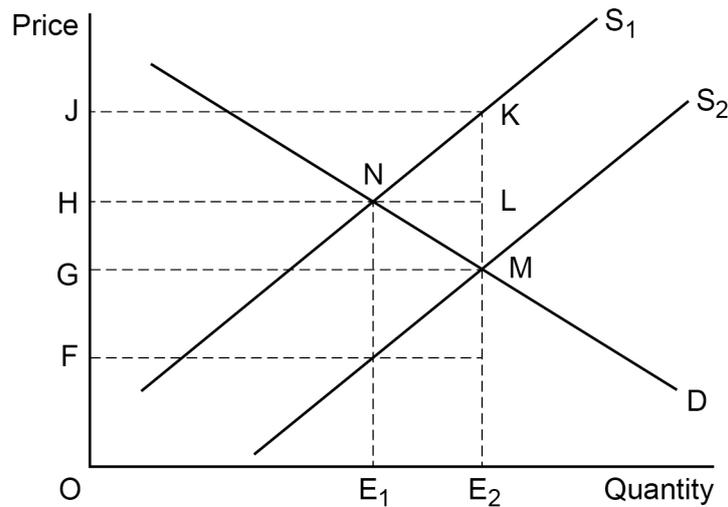
- A** decline in labour productivity.
- B** fall in the size of the labour force.
- C** negative demand-side shock to the economy.
- D** supply-side improvement.

[1 mark]



0 5

The diagram below shows the demand curve (D) and two supply curves ( $S_1$  and  $S_2$ ) in the market for renewable energy.



The renewable energy market is initially in equilibrium at a price of OH. The government then introduces a subsidy for renewable energy.

After the introduction of the subsidy, the total amount of money received by the producers from both consumers and the government is

A OGME<sub>2</sub>

B OHLE<sub>2</sub>

C OHNME<sub>2</sub>

D OJKE<sub>2</sub>

[1 mark]

0 6

Which one of the following provides a reason for government intervention in a market?

A Firms in an oligopolistic market may limit price competition.

B Market failures can only be corrected by using regulations.

C Monopolistically competitive firms earn abnormal profits in the long run.

D Public goods are excludable and rival.

[1 mark]



0 7

In recent years, several central banks around the world have implemented a policy of quantitative easing (QE). All other things being equal, which one of the following combinations **A**, **B**, **C** or **D**, is most likely to be the result of this policy?

	Bank liquidity	Bond prices	Long-term interest rates	
<b>A</b>	Decrease	Fall	Rise	<input type="radio"/>
<b>B</b>	Increase	Fall	Rise	<input type="radio"/>
<b>C</b>	Decrease	Rise	Fall	<input type="radio"/>
<b>D</b>	Increase	Rise	Fall	<input type="radio"/>

[1 mark]

0 8

The price of good Y, a substitute for good X, rises from 75p to £1. As a result, the quantity of demand for good X rises from 3 million units to 5 million units per month.

What is the value of the cross elasticity of demand for good X with respect to good Y?

- A** +0.5
- B** -0.5
- C** +2.0
- D** -2.0

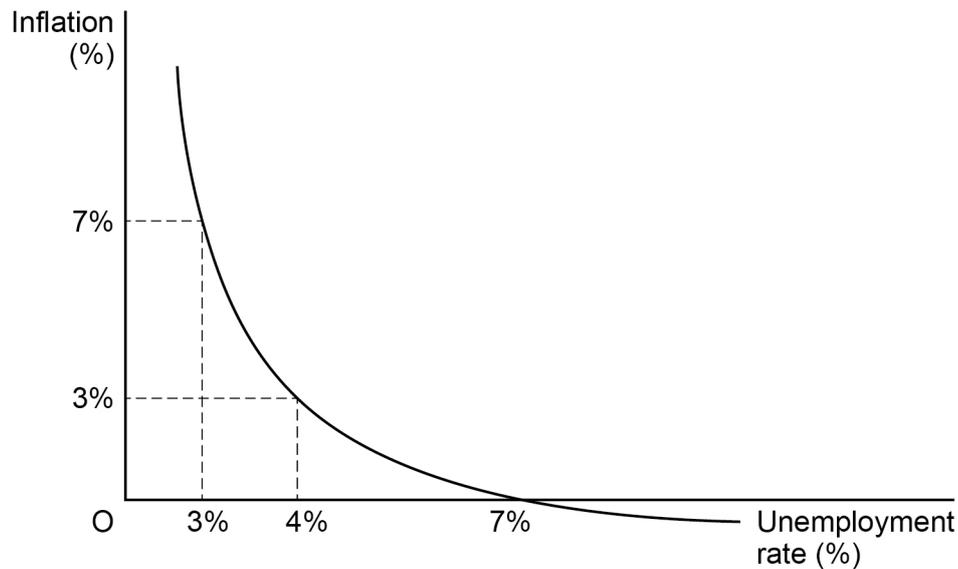
[1 mark]

Turn over for the next question



0 9

The short-run Phillips curve below illustrates the relationship between unemployment and inflation in an economy.



The Phillips curve shows that in this economy

- A** high inflation leads to high unemployment.
- B** there is an inversely proportional relationship between unemployment and inflation.
- C** the trade-off for reducing inflation from 7% to 3% is a 4% increase in unemployment.
- D** the trade-off for reducing unemployment from 7% to 4% is 3% inflation.

[1 mark]

1 0

Which one of the following is most likely to be associated with behavioural economic theory?

- A** All consumer behaviour is based on rational utility-maximising decisions.
- B** An individual's economic decisions may be biased.
- C** Price changes cannot explain how competitive markets achieve equilibrium.
- D** The behaviour of firms is based on their desire to maximise profit.

[1 mark]



1 1

At the initial market equilibrium, the income elasticity of demand for fresh chickens is +1.5, and the price elasticity of supply is +1.0. Then there is a 5% increase in consumers' income.

Which one of the following combinations, **A**, **B**, **C** or **D**, is most likely to show the changes in the market equilibrium price and quantity?

	Price	Quantity	
<b>A</b>	Higher	Unchanged	<input type="radio"/>
<b>B</b>	Higher	Higher	<input type="radio"/>
<b>C</b>	Unchanged	Unchanged	<input type="radio"/>
<b>D</b>	Lower	Higher	<input type="radio"/>

[1 mark]

Turn over for the next question

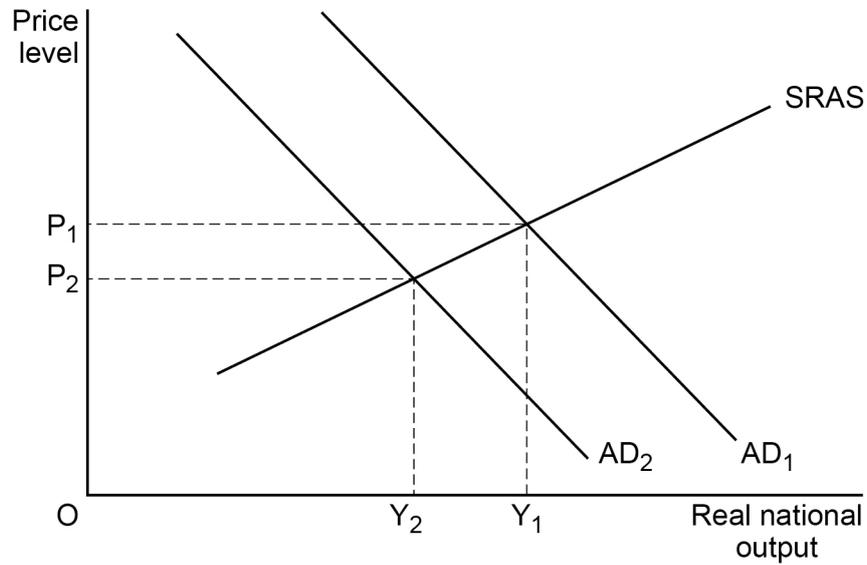
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1 2

The diagram below shows two aggregate demand (AD) curves and the short-run aggregate supply (SRAS) curve for an economy.

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All other things being equal, the change in real national output from  $Y_1$  to  $Y_2$  is most likely to have been caused by an increase in the

**A** government's budget deficit.

**B** level of interest rates.

**C** size of the labour force.

**D** volume of exports.

**[1 mark]**



1 3

An economy is in a state of macroeconomic equilibrium. The levels of investment, savings, exports and imports are shown below.

Injections into and withdrawals from the circular flow of income	
Investment	£200 bn
Savings	£200 bn
Exports	£300 bn
Imports	£400 bn

It can be inferred from the data in the table above that

- A** government expenditure equals taxation.
- B** the budget surplus equals the balance of payments deficit.
- C** the government has a budget deficit.
- D** the government has a budget surplus.

[1 mark]

1 4

The table below shows how a firm's total and average product change, in the short run, with different inputs of labour.

Number of workers	Total product	Average product
4	128	32
5	260	52
6	420	70
7	497	71
8	528	66

Diminishing marginal returns to labour set in when the firm employs

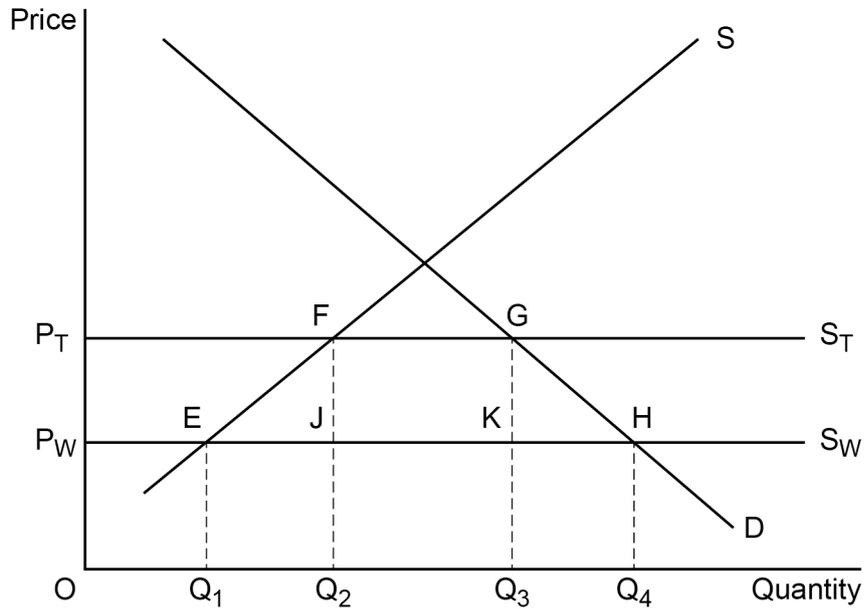
- A** 5 workers
- B** 6 workers
- C** 7 workers
- D** 8 workers

[1 mark]



1 5

The diagram below shows the market demand curve (D), the market supply curve (S) for solar panels produced in a country, and the world market supply curve ( $S_W$ ) for solar panels.



To protect domestic producers of solar panels the country introduces a tariff on imports. The imposition of the tariff increases the price of solar panels from the world market price ( $P_W$ ) to the higher price ( $P_T$ ).

Following the imposition of the tariff, the amount of tariff revenue collected by the government is shown by the area

- A EFGH
- B JFGK
- C  $P_W P_T GK$
- D  $Q_2 FG Q_3$

[1 mark]



**1 6**

A person eats six biscuits a day to maximise their total utility from the consumption of biscuits.

The price of biscuits increases by 50%, leading to a change in the individual's daily consumption of biscuits.

Which one of the following combinations, **A**, **B**, **C** or **D**, shows the most likely changes in the individual's total utility and marginal utility?

	Total utility derived from their daily consumption of biscuits	Marginal utility derived from the last biscuit consumed each day	
<b>A</b>	Decrease	Decrease	<input type="radio"/>
<b>B</b>	Increase	Decrease	<input type="radio"/>
<b>C</b>	Decrease	Increase	<input type="radio"/>
<b>D</b>	Increase	Increase	<input type="radio"/>

**[1 mark]****1 7**

A large, unexpected decline in house prices could lead to a systemic crisis in the financial system.

This is most likely to happen if, following the fall in house prices, commercial banks and building societies

- A** have a low ratio of capital to their total assets.
- B** have followed Prudential Regulation Authority (PRA) guidance to reduce the amount they lend to high-risk borrowers.
- C** have the option to use the Bank of England as the lender of last resort.
- D** hold a high proportion of liquid assets on their balance sheets.

**[1 mark]**

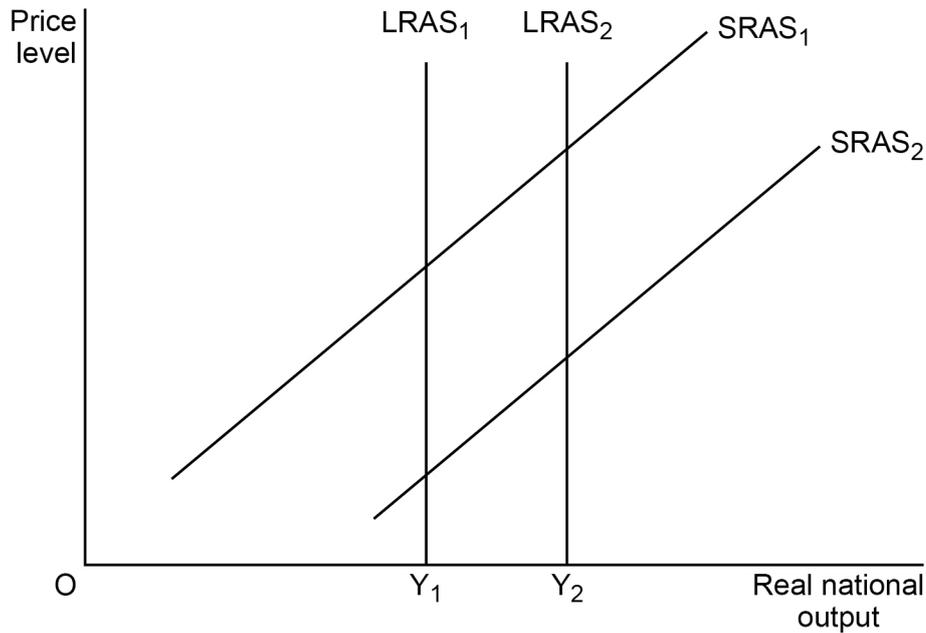
**Turn over for the next question**



1 8

The diagram below shows two long-run aggregate supply (LRAS) and two short-run aggregate supply (SRAS) curves for an economy.

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All other things being equal, which one of the following is most likely to explain the movement to the right of both the short-run and long-run aggregate supply curves?

- A** A large increase in the availability of renewable energy within the economy
- B** An increase in employment and a depreciation of the exchange rate
- C** An increase in the natural rate of unemployment and the level of money wage rates
- D** A supply-side shock to the economy which increases the rate of inflation

[1 mark]



**1 9**

The table below shows the average exchange rate and currency valuation estimates for four nations in comparison to the US Dollar in January 2016.

	<b>Average exchange rate to US \$1</b>	<b>Currency valuation estimate</b>
Australian Dollar	1.46	Undervalued by 24%
Brazilian Real	4.05	Undervalued by 32%
Chinese Yuan	6.57	Undervalued by 46%
Danish Krone	6.84	Undervalued by 12%

Which one of the following can be concluded from the data?

- A** The Australian Dollar has appreciated by 24% against the US Dollar.
- B** The Brazilian Real has been devalued by 32% against the US Dollar.
- C** The Chinese Yuan has depreciated the most against the US Dollar.
- D** The Danish Krone has the closest purchasing power parity to the US Dollar.

**[1 mark]****2 0**

A firm benefits from significant and persistent economies of scale as it increases output. Which one of the following is the most likely consequence as it grows in size?

The firm's

- A** ability to set its own prices will increase.
- B** long-run average cost curve will become 'U' shaped.
- C** increasing profitability will attract many new entrants.
- D** total cost of production will decrease.

**[1 mark]**

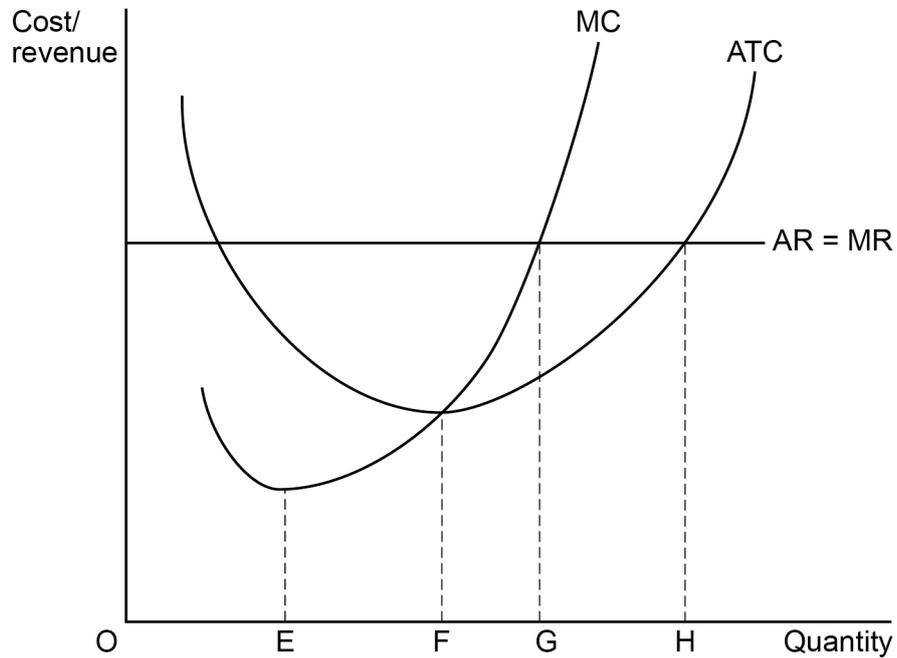
**Turn over for the next question**



**2 1**

The diagram below shows a firm operating in perfect competition in the short run.

Which quantity, **OE**, **OF**, **OG** or **OH**, indicates the output where profits are maximised?



**A** OE

**B** OF

**C** OG

**D** OH

**[1 mark]**

**2 2**

Which one of the following policies is most likely to have an immediate effect in helping to reduce the amount of poverty in the UK?

**A** An increase in government subsidies for buyers of electric cars

**B** A shift in the burden of taxation from direct to indirect taxes

**C** Setting a price floor for basic foods

**D** The introduction of a price ceiling for household energy

**[1 mark]**



**2 3**

The table below shows selected components of the UK balance of payments on current account as a percentage of GDP between 2011 and 2014.

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Year	Balance of trade in goods and services	Primary income balance	Secondary income balance	Current account balance
2011	-1.6	1.3	-1.3	-1.6
2012	-2.0	0.1	-1.3	-3.2
2013	-2.0	-1.0	-1.5	-4.5
2014	-1.9	-1.8	-1.4	-5.1

It can be concluded from the data that between 2011 and 2014 the main reason for the rise in the current account deficit as a percentage of GDP was

- A** GDP growing faster than the deficit on the current account.
- B** the deficit on trade in goods increasing by more than the surplus on trade in services.
- C** the deterioration in the primary income balance.
- D** the growth in the deficit on the secondary income balance.

[1 mark]

**2 4**

Globalisation can make some product markets more contestable.

Which one of the following characteristics of globalisation is the most likely explanation for such an increase in contestability?

- A** A reduction in protectionism
- B** Greater synchronisation of economic cycles between countries
- C** Higher levels of labour migration
- D** The growth of employment in emerging market economies

[1 mark]

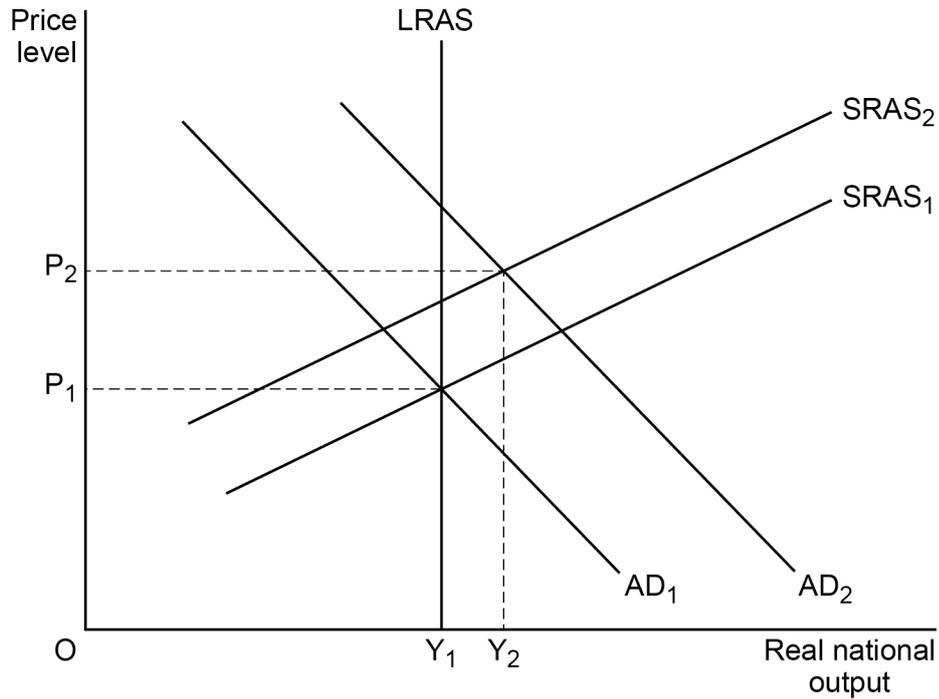
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2 5

The diagram below shows two aggregate demand (AD) curves, two short-run aggregate supply (SRAS) curves, and the long-run aggregate supply (LRAS) curve for an economy.

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The increase in the price level from  $P_1$  to  $P_2$  raises the rate of inflation above the target rate set by the government. In an attempt to bring inflation back to its target rate, the central bank announces a change in interest rates. Other things being equal, this is most likely to

**A** create upward pressure on the exchange rate.

**B** increase bond prices.

**C** make business loans more affordable.

**D** reduce the cost of servicing the national debt.

[1 mark]



2 6

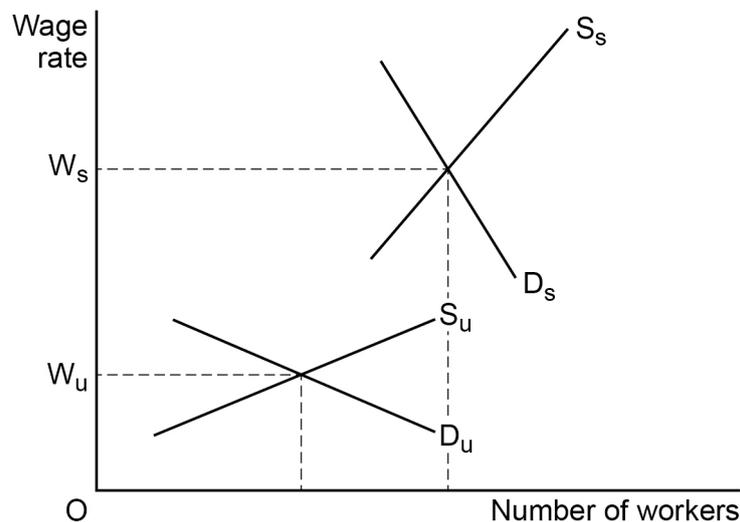
Which one of the following is most likely to measure the degree of competition in an oligopolistic industry?

- A The price elasticity of supply in the industry
- B The profitability of the 10 largest firms in the industry
- C The three firm concentration ratio
- D The value of the Gini coefficient

[1 mark]

2 7

The diagram below shows the demand and supply curves for skilled labour ( $D_s$  and  $S_s$ ) and unskilled labour ( $D_u$  and  $S_u$ ) and the wage differential ( $W_s - W_u$ ) between the two types of labour.



All other things being equal, which one of the following is most likely to cause a decrease in the wage differential?

- A A fall in the demand for unskilled workers
- B A fall in the size of the labour force
- C An increase in the demand for skilled workers
- D An increase in the proportion of the labour force with a degree

[1 mark]



**2 8**

In a labour market dominated by a monopsonist, wages and employment are usually lower than in a competitive labour market. This is because a monopsonist

- A** employs workers up to the point where the marginal revenue product of labour is equal to the wage rate.
- B** is a monopoly supplier of labour.
- C** equates the marginal revenue product of labour with its marginal cost not the wage rate.
- D** restricts output to raise the price of the product sold.

**[1 mark]****2 9**

Which one of the following is most likely to cause an increase in the structural budget deficit?

- A** A fall in income tax receipts in the downturn of the economic cycle
- B** A rise in government spending on unemployment-related benefits during a recession
- C** A rise in healthcare expenditure and state pension provision due to an ageing population
- D** A rise in spending on imports during an economic recovery

**[1 mark]**

**3 0**

The table below shows indices for real GDP and consumer prices in an economy over six quarters.

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Quarter	Index of real GDP	Index of consumer prices
1	106	100
2	105	105
3	104	111
4	105	116
5	107	120
6	110	123

During these six quarters the economy experienced

**A** deflation and a recession.

**B** disinflation when in recession.

**C** disinflation when recovering from recession.

**D** rising inflation when recovering from recession.

**[1 mark]**

**30**

**Turn over Section B**





































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Paper 3 Economic principles and issues

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Insert

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Other renewables	93	144	239	367	420
<b>Total</b>	<b>11 267</b>	<b>11 603</b>	<b>12 620</b>	<b>13 106</b>	<b>13 276</b>

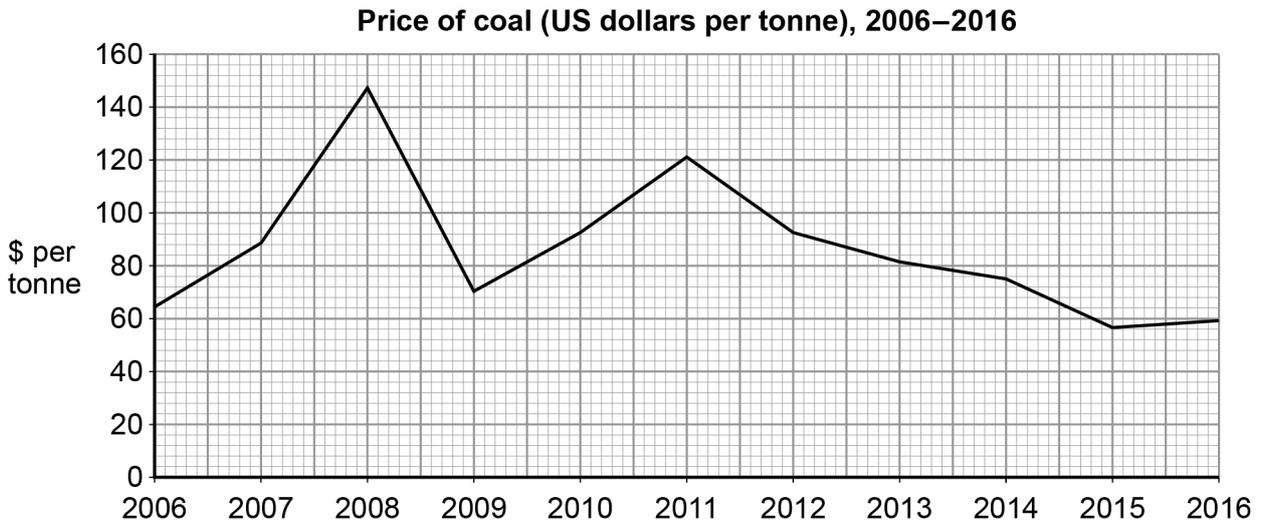
Note: Oil consumption is measured in million tonnes; other fuels in million tonnes of oil equivalent  
 Oil, natural gas and coal are fossil fuels  
 Other renewables include energy generated from the following renewable sources: wind, solar, geothermal, biomass and waste

Source: BP statistical review of world energy 2017

**Figure 2** Average cost of producing oil (US dollars per barrel), March 2016

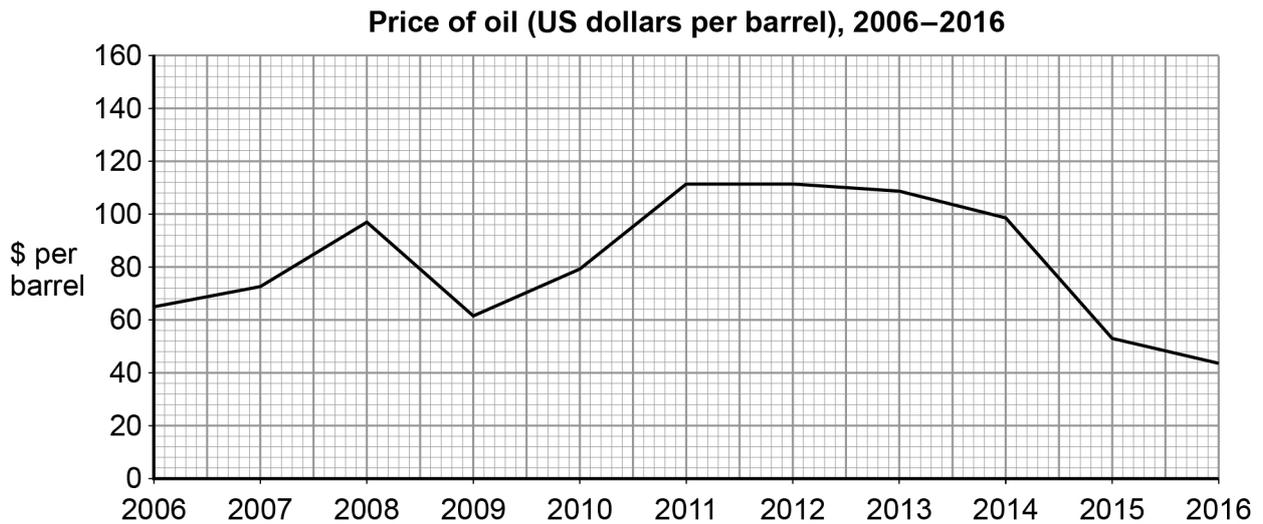
	Cost (\$)
UK	44.33
Nigeria	28.99
Venezuela	27.62
US shale	23.35
US non-shale	20.99
Saudi Arabia	8.98

**Figure 3** The price of coal



Source: BP statistical review of world energy 2017

**Figure 4** The price of oil



Source: BP statistical review of world energy 2017

## Extract D: Falling oil prices hit the oil-exporting countries hard

In 2014, despite the rapid fall in the price of oil, Saudi Arabia and the other OPEC countries did not cut production. Some believe that they wanted to make shale oil production in the US unprofitable to weaken a growing threat to OPEC's domination of the world oil market.

A fall in oil prices leads to a contraction of the oil sector in oil-exporting countries and also has other effects on their economies. For example, in the Middle East and North Africa, oil-based revenues often account for more than half of government revenue. A significant loss of government revenue may require a substantial reduction in public spending. A decline in oil prices reduces export revenues, leading to a deterioration in the current account of their balance of payments, usually causing a depreciation in their exchange rates. This is an important mechanism through which the economy can adjust, but it makes imports more expensive, adds to inflationary pressures and is likely to reduce living standards. It may also make it difficult to attract capital inflows and to finance both the balance of payments and budget deficits. 5 10

The Nigerian economy has been hit hard by low oil prices and falling oil production. The country went into recession in 2016, with real national income contracting by 1.5%. The annual inflation rate doubled to 18.6%, reflecting the weakness of the Nigerian currency. Even after cuts in capital spending, the budget deficit increased from 3.5% of GDP in 2015 to 4.7% of GDP in 2016. 15

Venezuela derives over 95% of its export earnings and almost half of government revenue from oil-related sectors. Falling oil prices aggravated Venezuela's economic crisis and it is estimated that the economy contracted by 10% in 2016 after a similar fall in real GDP in 2015. In 2016, its inflation rate was around 275%. Worsening shortages of food, medicines and other consumer goods are a symptom of the country's very fragile economy. Deteriorating public finances mean that Venezuela is a high-risk debtor, making it hard for the country to attract foreign capital. These difficulties are not all down to the fall in the price of oil. Nevertheless, a fall in the oil price makes it harder to deal with problems that are common to many less economically developed countries. 20

Source: News reports, April 2017

## Extract E: Crisis? What crisis?

In December 2016, the members of OPEC and 11 non-OPEC countries, including Russia, agreed to cut production to 'stabilise' the oil market and raise prices. The initial agreement was for six months but has since been extended for a further nine months. So far, compliance with the production cuts has been very high at 90% and oil prices have stabilised.

The fall in the price of oil has driven some US fracking companies out of business but it has not been as damaging as predicted. Many companies have learnt how to extract more shale oil from each rig, reducing the cost per barrel. Increases in productivity reduce the break-even price of extracting oil from shale by fracking. If oil prices rise, output and investment in the industry are likely to increase again. 5

Recently, growth in the world economy has picked up. This will boost the demand for oil and put upward pressure on oil prices. In the long run, developments in technology that lower the cost of supplying renewable energy and producing electric cars, buses and lorries will reduce the demand for oil. A high price for oil should incentivise such developments. 10

Source: News reports, June 2017

## END OF EXTRACTS