



Oxford Cambridge and RSA

Friday 7 June 2024 – Morning

A Level Economics

H460/03 Themes in economics

Time allowed: 2 hours



You can use:

- a scientific or graphical calculator



Please write clearly in black ink. **Do not write in the barcodes.**

Centre number

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Candidate number

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First name(s)

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Last name

StemUp Model Solution

INSTRUCTIONS

- Use black ink. You can use an HB pencil, but only for graphs and diagrams.
- Write your answer to each question in the space provided. If you need extra space use the lined pages at the end of this booklet. The question numbers must be clearly shown.
- Answer **all** the questions.

INFORMATION

- The total mark for this paper is **80**.
- The marks for each question are shown in brackets [].
- Quality of extended response will be assessed in questions marked with an asterisk (*).
- This document has **28** pages.

ADVICE

- Read each question carefully before you start your answer.

Section A

Write your answer to **each** question in the box provided.

1 What is the reward to enterprise?

- A Interest
- B Profit
- C Rent
- D Wages

Your answer

B

[1]

2 The marginal propensity to withdraw (mpw) in an economy is 0.6.
There is an injection of £150bn into the economy.

What is the final increase in GDP?

- A £90 billion
- B £100 billion
- C £250 billion
- D £375 billion

Your answer

C

[1]

3 Which of these is a function of money?

- A Divisibility
- B Durability
- C Limited supply
- D Unit of account

Your answer

D

[1]

- 4 Which of these describes the process of crowding out?
- A An increase in government spending leads to a fall in private sector investment
 - B The process by which government spending and tax revenue vary with the economic cycle
 - C The transfer of an organisation from public sector ownership and control to private sector ownership and control
 - D When monetary policy becomes ineffective as households prefer to save even though interest rates are very low

Your answer

A

[1]

- 5 As a result of a 12% reduction in the price of Good A, the quantity demanded of Good B increased by 3%.

What is the relationship between the two goods?

- A Strong complements
- B Strong substitutes
- C Weak complements
- D Weak substitutes

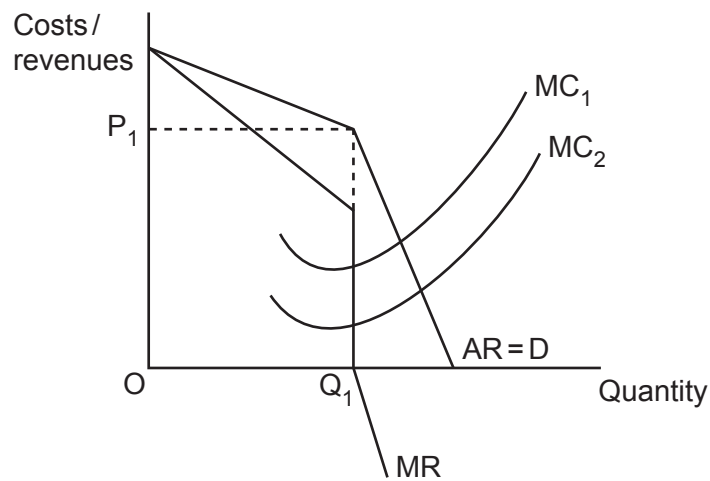
Your answer

D

[1]

- 6 An oligopoly firm faces costs and revenues as shown below.

If marginal cost falls from MC_1 to MC_2 what is the effect on price, output and profit?



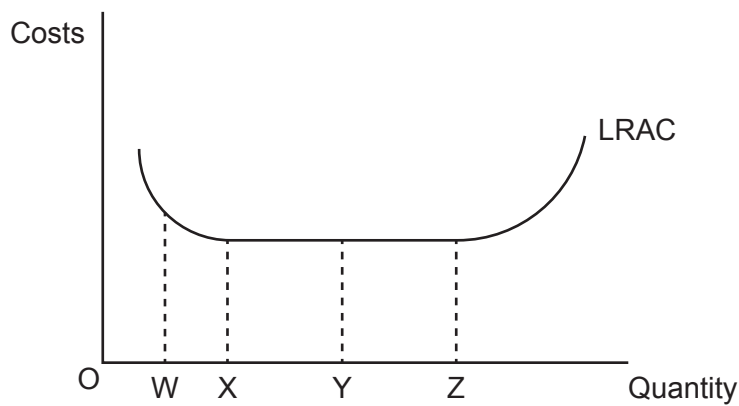
	Price	Output	Profit
A	Decrease	Increase	Increase
B	Decrease	Increase	Unchanged
C	Increase	Decrease	Unchanged
D	Unchanged	Unchanged	Increase

Your answer

D

[1]

- 7 Which point on the diagram represents the Minimum Efficient Scale (MES)?



- A W
B X
C Y
D Z

Your answer

B

[1]

- 8 Which of these characteristics describes a market under monopolistic competition?

- A High entry barriers, differentiated goods, many firms
B Low entry barriers, differentiated goods, normal profit in the long run
C Low entry barriers, few firms, normal profit in the long run
D Low entry barriers, many firms, supernormal profit in the long run

Your answer

B

[1]

- 9 The table shows the total utility from consuming units of a good.

Unit of Consumption	Total Utility
1	20
2	25
3	31
4	35
5	38
6	40
7	39

What unit of consumption does the consumer begin to experience diminishing marginal utility?

- A 4
- B 5
- C 6
- D 7

Your answer

A

[1]

- 10 A UK firm imports oranges from Portugal. 200 kg of oranges costs the firm 300 euros. The exchange rate is £1 Sterling to 1.2 euros.

How much does 400 kg of oranges cost the firm in £ Sterling?

- A £250
- B £360
- C £500
- D £72

Your answer

C

[1]

11 The quantity of output at which a monopoly firm will maximise revenue is where:

- A $AC = AR$
- B $AC = MC$
- C $MC = MR$
- D $MR = 0$

Your answer

D

[1]

12 A worker is paid £12 per hour to assemble bicycle parts in a factory.
The worker's productivity increases from 20 units per hour to 24 units per hour.

What is the change in the unit labour cost to the firm?

- A Decreases by £0.10
- B Decreases by £0.33
- C Decreases by £0.50
- D Increases by £0.83

Your answer

A

[1]

13 In a free market for labour if the supply of labour becomes more inelastic which of these will fall?

- A Economic rent
- B Marginal revenue product
- C Transfer earnings
- D Wages

Your answer

C

[1]

- 14** The Fisher equation of exchange shows the relationship between: Money supply (M), Price level (P), Velocity of circulation (V) and National income (Y).

Which of these is the correct equation?

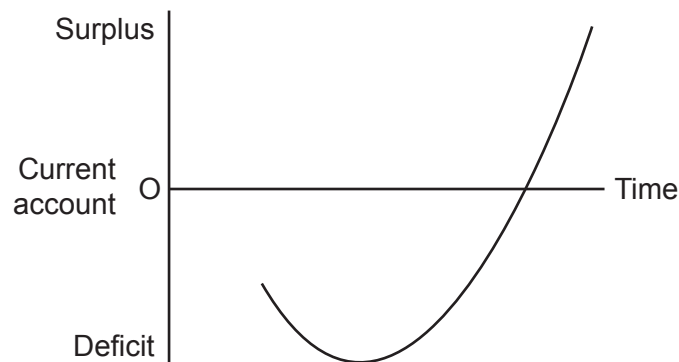
- A** $MV = PY$
- B** $MY = PV$
- C** $PM = YV$
- D** $PV = MY$

Your answer

A

[1]

- 15** What does the diagram suggest?



- A** A depreciation in the exchange rate will decrease the government's budget deficit
- B** A depreciation in the exchange rate will increase the government's budget deficit
- C** Demand for exports and imports is price elastic in the short run
- D** Demand for exports and imports is price inelastic in the short run

Your answer

B

[1]

16 Income tax is imposed in a country using the tax bands below.

Income (\$)	Tax Rate (%)
0–15,000	10
15,001–50,000	10
Over 50,000	10

Which type of taxation is this?

- A Indirect
- B Progressive
- C Proportional
- D Regressive

Your answer

C

[1]

17 In a society where there is a perfectly unequal distribution of income, one person has all of the income and every other person has zero income.

What would be the value of the Gini Coefficient?

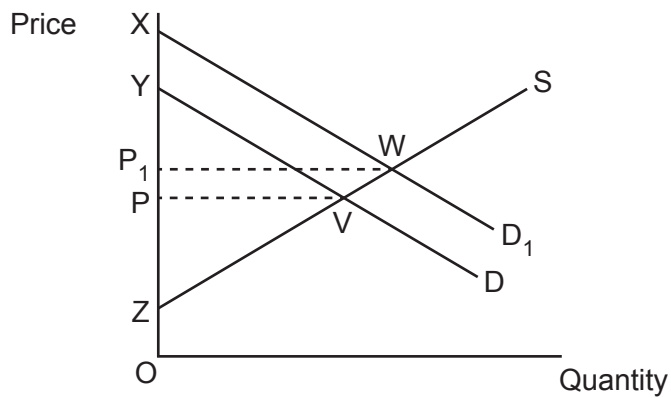
- A -1
- B 0
- C 1
- D Infinity

Your answer

C

[1]

- 18 In the diagram the demand for the good shifts from D to D_1 .



What area represents the change in the producer surplus?

- A P V Z
- B P V W P_1
- C P_1 W X
- D P_1 W Z

Your answer

B

[1]

- 19 Which of these is a leakage from the circular flow of income?

- A Exports
- B Imports
- C Investment
- D Wage

Your answer

B

[1]

20 Moral hazard is a situation where:

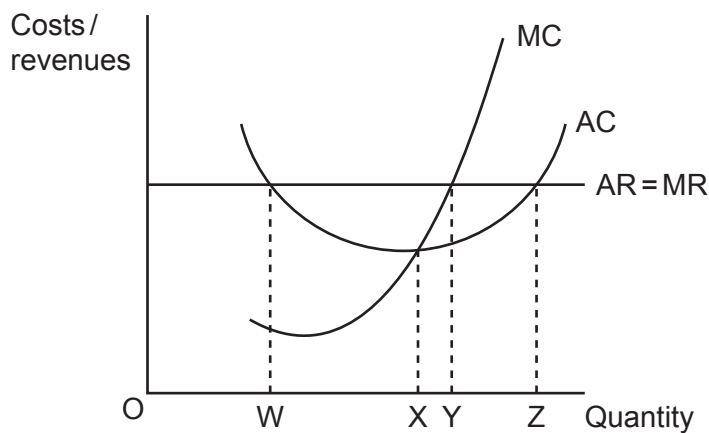
- A Buyers and sellers have different information which results in market failure
- B Firms or households are more likely to take risks if they are insured against any negative impact of their actions
- C Goods are under demanded by consumers and therefore underprovided by markets
- D People are able to consume a good without paying for it

Your answer

B

[1]

21 The diagram shows a firm in a perfectly competitive market making supernormal profit in the short run.



What is the allocatively efficient level of output?

- A W
- B X
- C Y
- D Z

Your answer

C

[1]

22 A firm wants to use third degree price discrimination.

Which of these factors would make it difficult for the firm to adopt this strategy successfully?

- A All consumers have the same price elasticity of demand for the good
- B Consumers from the lower price market are not able to sell to consumers from the higher price market
- C The firm is able to segment the market
- D The firm operates under imperfect competition

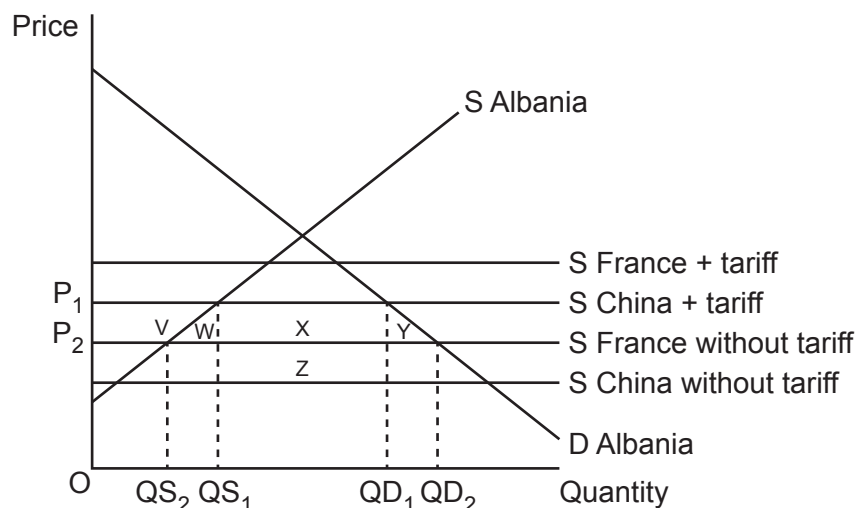
Your answer

A

[1]

23 If Albania were to join the European Union (EU) then tariffs on goods from EU countries such as France would be removed, however tariffs on goods from China would remain.

In the diagram the price of the good would fall from P_1 to P_2 as Albanian consumers could access supply from France without a tariff.



What would be the net impact to the Albanian economy because of this change?

- A $V + W + X + Y$
- B $V + X + Z$
- C $W + X + Y$
- D $W + Y - Z$

Your answer

D

[1]

24 What is the least liquid asset?

- A** Central bank reserves
- B** Sight deposits
- C** Notes and coins
- D** Time deposits

Your answer

D

[1]

25 A maximum price for rent is imposed in the London housing market.

What is the likely impact?

- A** A decrease in consumer surplus
- B** An excess demand for rental housing
- C** An increase in government tax revenue
- D** An increase in producer surplus

Your answer

B

[1]

26 What is a characteristic of both a market operating under perfect competition and a contestable market?

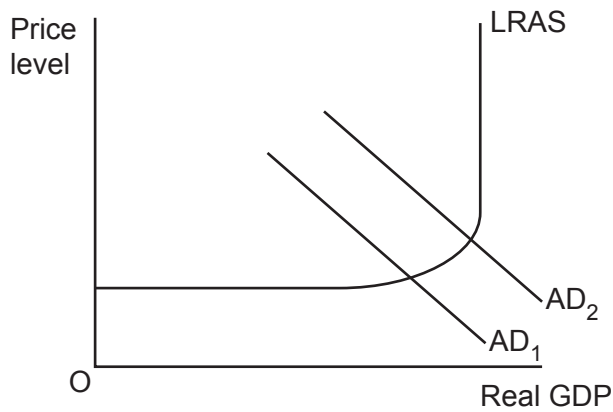
- A** Freedom of entry and exit
- B** Homogenous goods
- C** Many firms
- D** Price discrimination

Your answer

A

[1]

27 What is likely to have caused the shift in Aggregate Demand shown in the diagram?



- A A decrease in consumer confidence
- B A reduction in income tax rates
- C An increase in corporation tax rates
- D An increase in the price of oil

Your answer

B

[1]

28 Which of these is measured as part of the Human Development Index (HDI)?

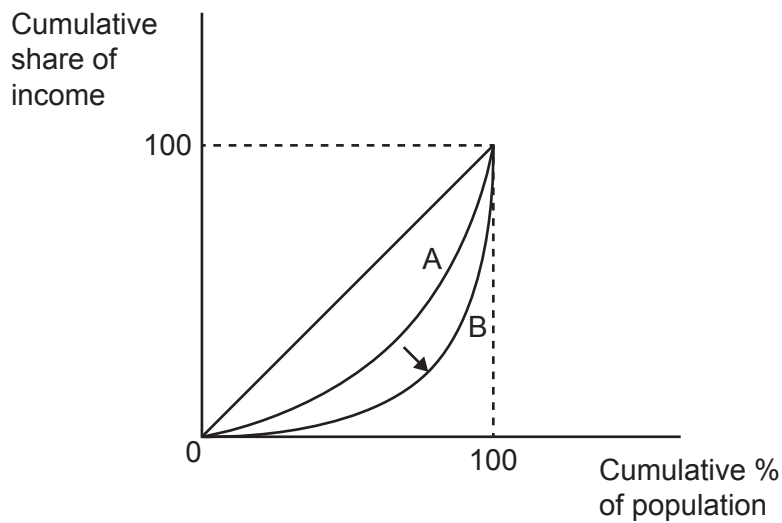
- A Costs of environmental degradation
- B GNI per capita
- C Literacy rates
- D Population with no access to health services

Your answer

B

[1]

29 What could have caused the shift in a country's Lorenz curve shown in the diagram?



- A An increase in access to healthcare that is free at the point of use
- B An increase in the inheritance tax rate
- C An increase in the market power and influence of large firms
- D New legislation that protects workers from discrimination based on their race or gender

Your answer

C

[1]

30 Where would Foreign Aid appear on the current account of the balance of payments?

- A Primary income
- B Secondary income
- C Trade in goods
- D Trade in services

Your answer

B

[1]

Section B

Read the extracts before answering the questions.

Extract 1**Global heating and the water market**

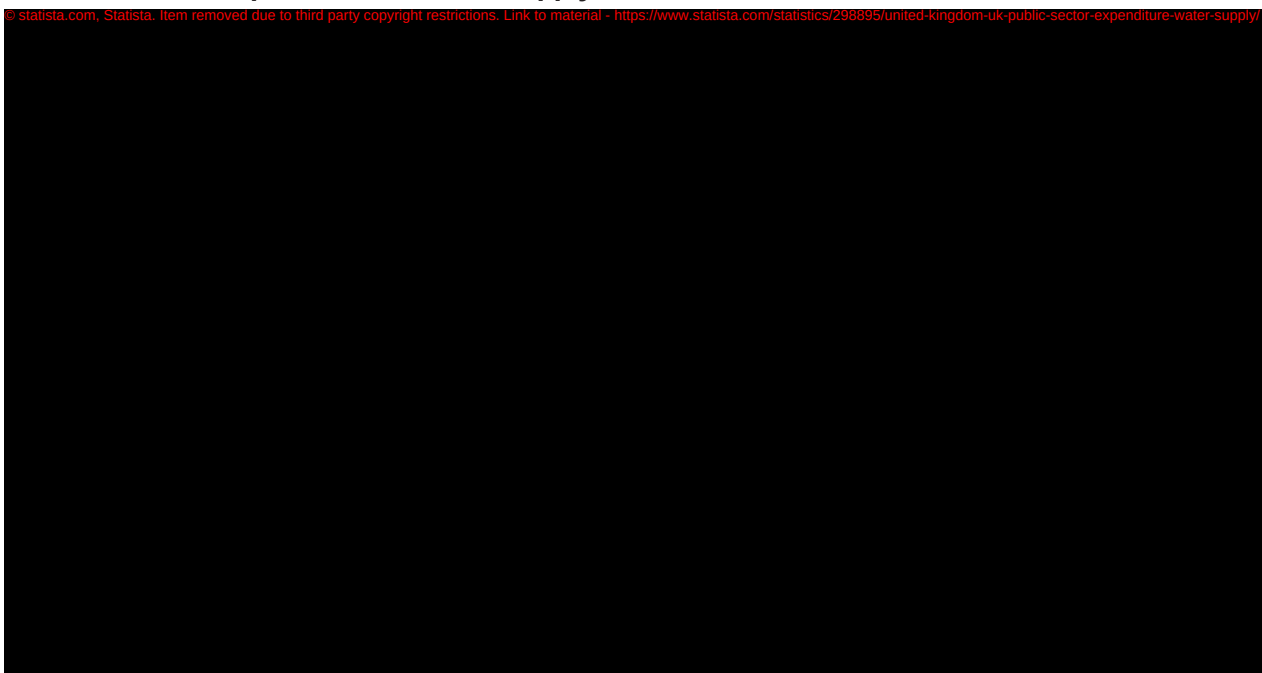
In August 2022 temperatures in the UK hit 40 °C for the first time. This is part of a longer-term trend for higher temperatures: the ten hottest years since records began have occurred since 2002. The lack of rainfall across the country placed many regions in an official drought.

Water companies faced problems as reservoir levels fell and demand for water increased along with the temperature. The provision of water and sewage services in England and Wales was privatised in 1989 when ten newly created private sector firms took control of the market.

5

Each firm is a regional monopoly and consumers have no choice over their supplier. Water supply in Scotland and Northern Ireland remains a nationalised industry run by the government. Public sector expenditure on water supply can be seen in Fig. 1.1, this expenditure can be considered in relation to the size of GDP which was £1,101 billion in 2021/22.

10

Fig. 1.1**Public sector expenditure on water supply from 2009/10 to 2021/22 in £ million.**

Private sector firms made profits of over £2.8 billion in 2020 and have been criticised for paying out over £16 billion in dividends in the past decade. The pay of some Chief Executives has been questioned with some earning close to £3m per year. The regulator of the industry, OFWAT, has no formal powers to control profits or dividends but does stress the importance of water companies making enough profit to fund large scale investment and maintain quality and environmental standards.

15

A recent Environment Agency report highlighted problems with water companies dumping sewage into English rivers and seas. In 2021 Southern Water was fined £90m for dumping billions of litres of untreated sewage into the sea. The government's Water Minister called for greater investment by private sector firms to prevent leakages. It is estimated that water companies lost over 1 trillion litres of water in 2021.

20

As summers look set to heat up further, pressure will mount on the efficiency of water supply. Whether England and Wales should continue to be two of the few countries in the world with a privatised water industry may be called into question.

- 31 Using the data in **Fig. 1.1** and information in **Extract 1**, calculate public sector expenditure on water supply as a proportion of GDP in 2021/22.

Public sector expenditure on water supply in 2021/22 = £970 million (Fig. 1.1)
GDP in 2021/22 = £1,101 billion = £1,101,000 million
 $(£970m \div £1,101,000m) \times 100 = 0.088\%$
 $= 0.09\% \text{ of GDP}$
 [2]

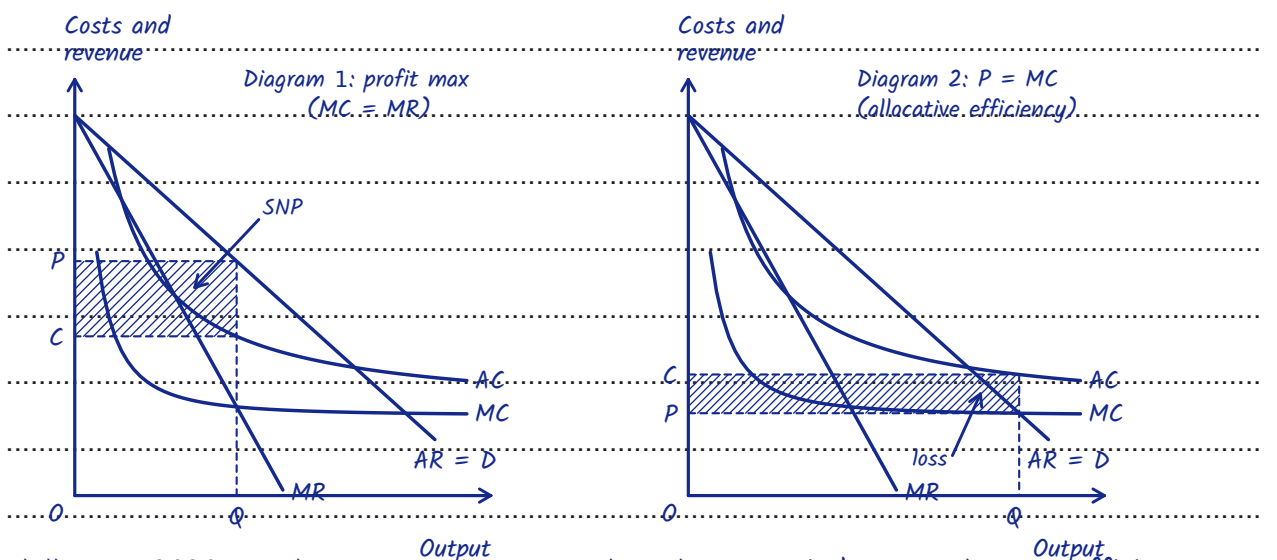
- 32 Explain why privatisation may increase long run aggregate supply (LRAS).

Privatisation is the transfer of a firm or industry from public sector ownership and control to private sector ownership. Private owners are driven by the profit motive and may face more competition, so they have an incentive to cut waste and become more efficient, and to invest in new capital and technology, for example new pipes and treatment works.
This increases the productivity, quality and quantity of the economy's factors of production, raising the productive potential of the whole economy, so the LRAS curve shifts to the right.
 [3]

- 33* Evaluate, using an appropriate diagram(s) and the information in **Extract 1**, whether a natural monopoly such as water supply should be run by private sector firms. [15]

A natural monopoly exists where the minimum efficient scale (MES) is so large relative to market demand that one firm can supply the whole market at a lower average cost than two or more firms could. Water supply fits this; the fixed costs of reservoirs, treatment works and pipe networks are enormous, so average cost keeps falling over the whole range of output and duplicating the network would be wasteful. Since 1989 water in England and Wales has been supplied by ten private regional monopolies, while Scotland and Northern Ireland keep a nationalised industry.

The case for private ownership rests on the profit motive. As Diagram 1 shows, an unregulated private monopolist produces where $MC = MR$, at output Q and price P , earning supernormal profit of $(P - C) \times Q$, the shaded area. These profits, over £2.8



billion in 2020, can be reinvested in research and new capital, giving dynamic efficiency, for example replacing old pipes to cut the 1 trillion litres of water lost in 2021, which improves the quality of the service over time. OFWAT itself stresses that firms need enough profit to fund large scale investment and maintain quality and environmental standards.

Secondly, private owners face pressure from shareholders to minimise costs, so the profit motive encourages x-efficiency and production at the lowest average cost available, whereas a state-run monopoly may suffer from bureaucracy and organisational slack. Private firms can also offer higher pay to attract managers and engineers with the

expertise to raise productivity and lower costs. Finally, the government does not have to fund the huge investment and running costs itself: the state already spends about £970m a year on water in Scotland and Northern Ireland (about 0.09% of GDP), and renationalising England and Wales would cost billions in compensation, with an opportunity cost in schools or the NHS.

However, a private natural monopoly is likely to be allocatively inefficient. In Diagram 1 price P is well above MC at Q , so output is restricted below the allocatively efficient level where $P = MC$, and consumers, who have no choice over their supplier, pay higher prices and lose consumer surplus. Output Q is also not at the lowest point of AC , so the firm is not productively efficient. As water is a necessity with very price inelastic demand, the monopolist can raise prices with little loss of sales.

Moreover, there is no guarantee that supernormal profit is reinvested. Firms paid out over £16 billion in dividends in the past decade and some Chief Executives earn close to £3m a year, yet leakage and pollution continued. With no competition there is little incentive to be x-efficient, and the profit motive may lead to cost cutting that harms quality and safety. Southern Water was fined £90m for dumping billions of litres of untreated sewage into the sea, a negative externality on third parties. OFWAT has no formal powers to control profits or dividends, so regulation is weak.

Turn over for the next question

Extract 2

The impacts on inflation

Heatwaves have been linked to a fall in productivity and drought causes output of agricultural goods to fall, driving up prices. Food and energy prices in the UK were also on the rise due to the instability in Europe. Tightening labour markets and disruption to supply chains caused by the pandemic have also contributed to inflation soaring above the 2% target in the UK in 2022.

The Monetary Policy Committee (MPC) has responded to rising inflation. It raised the official bank (base) rate from 0.75% in April 2022 to 2.25% by September 2022. The MPC was hoping that the increased interest rates would cause an appreciation in the value of Sterling as well as increasing the household savings ratio. There are close to 11 million mortgages in the UK totaling over £1.6 billion, over three quarters of mortgage holders are on a fixed rate and in recent years the number of new mortgages being taken out at fixed rates has been even higher as house buyers looked to lock in to historically low interest rates.

Some economists have argued that attempts to tighten demand at a time when economic growth is flat is not the best policy option.

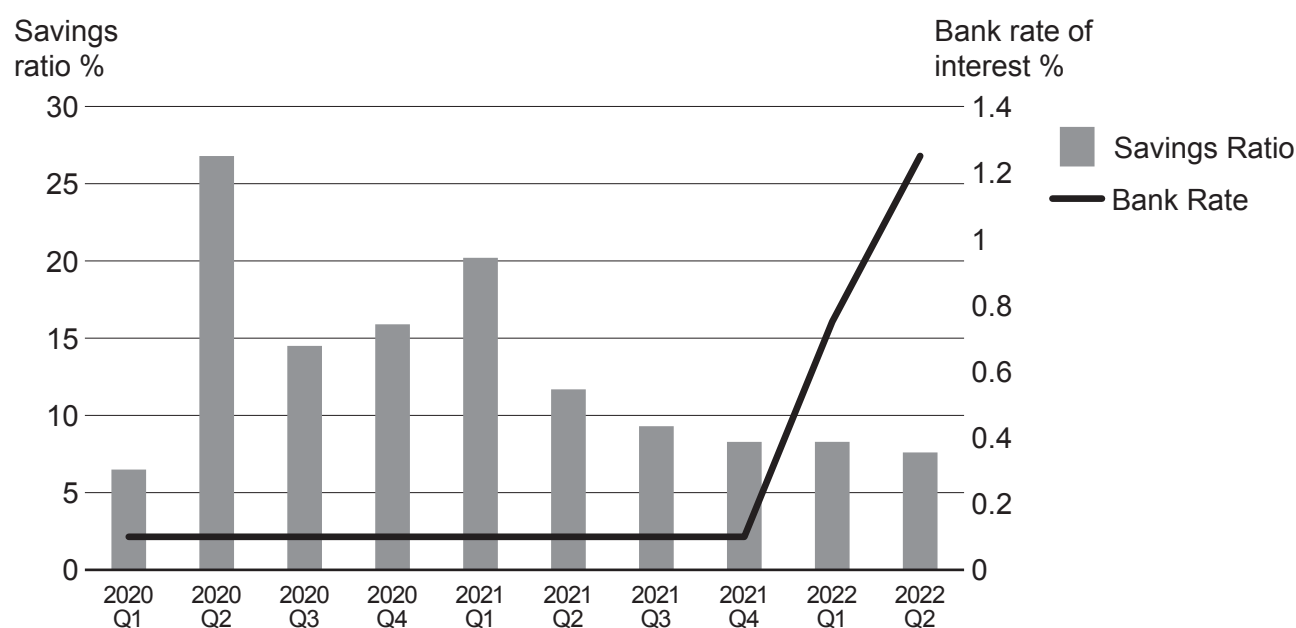
Fig. 2.1

The Consumer Price Index (CPI) of inflation for the UK (Base Year = 2015)

Date	Value
August 2018	106.5
August 2019	108.4
August 2020	108.6
August 2021	112.1
August 2022	123.1

Fig. 2.2

The Bank of England bank rate of interest and the household savings ratio in the UK 2020–2022



The household savings ratio is the proportion of disposable income that is not spent.

- 34 Using the data in **Fig. 2.1**, compare the annual inflation rate in August 2022 to the annual inflation rate in August 2019.

August 2019: $((108.4 - 106.5) \div 106.5) \times 100 = 1.78\%$

August 2022: $((123.1 - 112.1) \div 112.1) \times 100 = 9.81\%$

The annual inflation rate was much higher in August 2022 (9.81%) than in August 2019 (1.78%). It increased by 8.03 percentage points, more than five times the 2019 rate and well above the 2% target.

[3]

- 35 Using **Fig. 2.2**, identify what evidence there is that the rate of interest may not have been a large determinant of household saving in the UK between 2020 and 2022.

Between 2020 Q1 and 2020 Q2 the bank rate stayed constant at about 0.1%, but the savings ratio rose sharply from about 6% to over 25%; it then fell to under 10% by 2021 Q4 with the bank rate still unchanged.

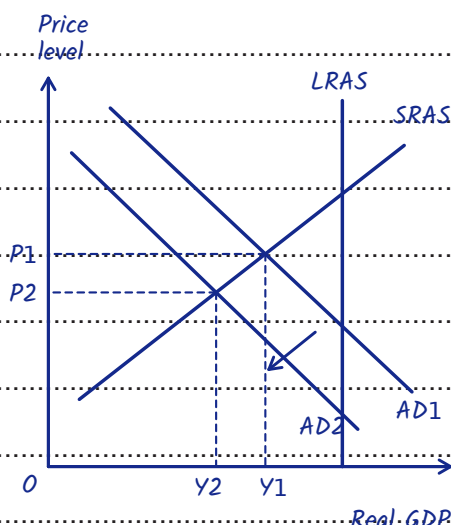
From 2021 Q4 to 2022 Q2 the bank rate rose from 0.1% to about 1.25%, yet the savings ratio fell from about 8% to about 7%.

[2]

Turn over for the next question

- 36* Evaluate, using the information in **Extract 2**, whether increasing the interest rate was an effective way to combat rising inflation. [15]

Inflation is a sustained rise in the general price level, measured in the UK by the CPI. Using Fig. 2.1, annual CPI inflation reached 9.8% in August 2022, almost five times the 2% target. The MPC responded by raising the bank rate from 0.75% in April 2022 to 2.25% by September 2022, aiming to reduce aggregate demand ($AD = C + I + G + X - M$) through the monetary transmission mechanism. First, higher interest rates increase the reward for saving, so households save a greater proportion of disposable income; the MPC hoped to raise the household savings ratio. This lowers consumption, the largest component of AD. Second, higher rates mean larger repayments on variable rate mortgages and loans, reducing discretionary income and discouraging credit financed spending; with close to 11 million mortgages worth over £1.6 billion this effect could be large. Third, firms face a higher cost of borrowing, so fewer investment projects are profitable and investment falls. Higher rates also attract hot money inflows, raising demand for sterling so the currency appreciates, as the MPC hoped. Exports become dearer and imports cheaper, so net exports fall, reducing AD further, while cheaper imported food, energy and raw materials lower firms' costs. As the diagram shows, AD shifts left from AD1 to AD2, so the price level falls from P1 to P2 compared with what it would otherwise have been, and inflation falls back towards target. Raising rates also signals that the MPC is serious, anchoring inflation expectations and reducing the risk of a wage price spiral in tight labour markets. However, the policy's effectiveness is limited. Over three quarters of mortgage holders are on fixed rates, and even more new mortgages were fixed to lock in historically low rates, so most households will not face higher repayments until their deal expires. With time



lags of up to two years, consumption may not fall in the short run, when inflation is highest. A rise of 1.5 percentage points is also small compared with inflation of almost 10%, so real interest rates stayed strongly negative, giving little incentive to save. Household saving is also determined by factors other than the interest rate. Fig. 2.2 shows the savings ratio jumped to over 25% in 2020 Q2 while the bank rate stayed at 0.1%, because of lockdowns and precautionary saving, and it fell in 2022 as the bank rate rose, as households ran down savings to cope with rising living costs. Likewise, the value of sterling depends on other factors, such as interest rates in other countries: if the US raised rates faster, sterling may not appreciate. Even if it does, demand for exports and imports is often price inelastic in the short run, so (the reverse J curve) the trade balance may not worsen and AD may not fall much. Most importantly, Extract 2 suggests inflation was largely cost push: drought cutting agricultural output, food and energy prices rising due to instability in Europe, and supply chain disruption from the pandemic. These shift SRAS to the left and are global in origin, so UK interest rates have limited effect on them. Reducing AD to lower the price level when growth is flat risks recession and higher unemployment, damaging growth and jobs, as some economists in the extract argue. Overall, raising interest rates was only partly effective. It depends on the cause of

Turn over for the next question

Extract 3

Firefighters' pay

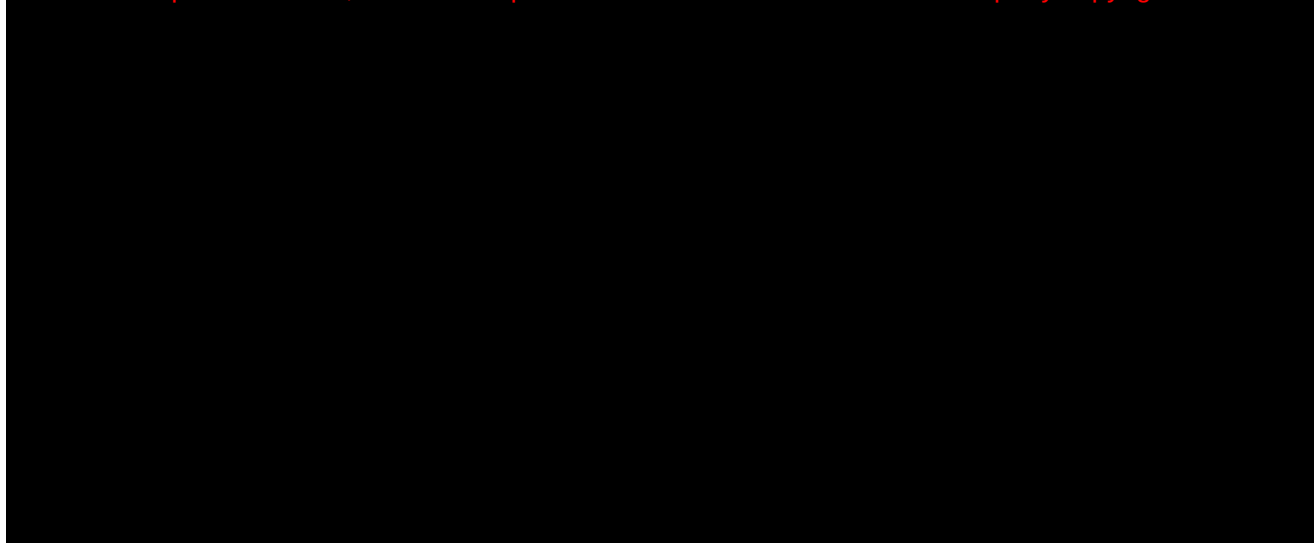
The high temperatures and prolonged drought in the summer of 2022 led to a surge in the number of fires. The economic impact of these fires is difficult to capture. The distress of losing a home and possessions, and the impacts to wildlife are not captured by Gross Domestic Product (GDP). An issue with GDP is that it measures any positive impact from the aftermath of fires, such as rebuilding a house, but it fails to capture all of the negative impacts. Some economists argue that measures such as the Human Development Index, (HDI), are more useful than GDP.

5

Fig. 3.1

Change in UK Gross Domestic Product (GDP) and UK Human Development Index (HDI) score

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Firefighters are under increasing pressure and the job is becoming ever more dangerous. The Fire Brigades Union (FGU) which represents firefighters in the UK is considering strike action in response to government proposals to offer a 2% pay rise to firefighters, a rise well below the rate of inflation. The FGU has over 30,000 members, more than 80% of the workforce. The FGU face a monopsony employer; the government is the only buyer of labour for fire services.

10

To become a firefighter people must complete a 12-18 week training programme which includes medical, fitness and written tests. Once they begin work, firefighters must complete a further 18-24 months of on the job training. However there are no formal qualifications required to join the Fire Service. The number of firefighters in the UK has fallen around 20% from 2010 to 2021. In 2022, however, average wages for firefighters in the UK stand at £38,800 which is higher than average wages for police officers, paramedics and those in the Armed Forces. It is also higher than the UK median average pay.

15

37 Using **Fig. 3.1**, compare GDP and HDI growth between 2011 and 2021.

Both GDP and HDI grew over the whole period from 2011 to 2021, following the same upward trend.

However, GDP grew at a faster rate than HDI, so the difference between their growth rates increased over time and changes in GDP were more pronounced than changes in HDI.

[2]

38 Evaluate, using the information in **Extract 3**, whether firefighter pay is likely to increase.

Firefighter pay depends on the demand for and supply of firefighters and on bargaining power. Several factors suggest pay will rise. The FGU has over 30,000 members, more than 80% of the workforce, so high union density gives strong collective bargaining power, and the threat of strikes over a 2% offer well below inflation could force the government to raise pay. Supply is also restricted: training of 12 to 18 weeks plus 18 to 24 months on the job is a barrier to entry, making supply inelastic, and numbers fell around 20% from 2010 to 2021. As the job becomes more dangerous a larger compensating differential is needed to attract and keep workers, while hotter summers and more fires raise demand for firefighters.

However, the government is a monopsony employer. As the diagram shows, a monopsonist employs L_1 where $MCL = MRP$ and pays only w_1 ,

below the competitive wage. A strong union could

push the wage up to w_{TU} and even raise

employment to L_2 , but the monopsonist also has

strong bargaining power, and public sector pay is

limited by tax revenue and by pay deals for other

public sector workers. No formal qualifications are

required, so supply could increase, and pay of

£38,800 is already above police officers, paramedics, the Armed Forces and median pay,

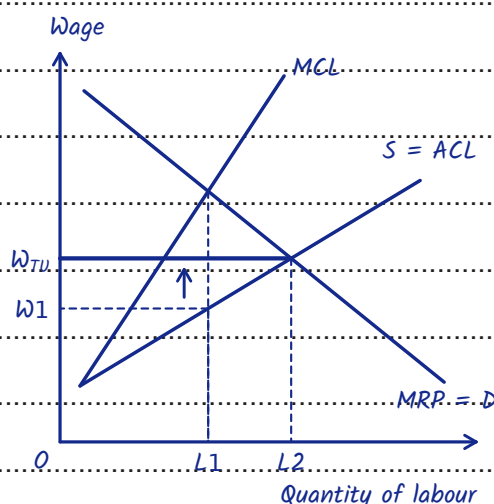
which may attract workers from other jobs and limit wage rises.

On balance, money wages are likely to rise above the 2% offer because of high union

density and falling supply, but real pay may still fall. It depends on the level of inflation,

on public reaction to any strikes, and on the elasticity of labour supply, which is low in

the short run.



[8]

END OF QUESTION PAPER

EXTRA ANSWER SPACE

If you need extra space use these lined pages. You must write the question numbers clearly in the margin.

33. Yet nationalisation is not a perfect answer. If a state-owned firm set price equal to marginal cost to be allocatively efficient, as in Diagram 2, price P would be below average cost C because AC is still falling at Q , so it would make a loss of $(C - P) \times Q$ that taxpayers must fund through a subsidy. This has an opportunity cost, and without a profit motive a nationalised firm may become x-inefficient, a form of government failure.

Overall, whether water should be run by private firms depends on the level of regulation. The sewage dumping, leakage and high dividends suggest that light touch regulation has failed, but this does not automatically mean nationalisation. If OFWAT were given powers to cap prices ($RPI - X$), set binding investment and leakage targets and limit dividends until standards are met, private firms would keep their efficiency incentives while consumers are protected. It also depends on whether the government subsidises firms to produce nearer the allocatively efficient output, and on contestability: competitive tendering for regional licences could add pressure. Because the MES is so large that competition in the market is impossible, I judge that private ownership can work, but only with much tougher regulation; with summers heating up and pressure on supply mounting, reforming regulation is quicker and cheaper than buying back the industry.

36 inflation: it tackles the demand pull element from tight labour markets and helps anchor expectations, but has limited effect on the imported cost push element behind most of the 9.8%. It also depends on confidence and expectations of future rate changes, on interest rates in other countries, and on whether fiscal policy, supply side policies and the unwinding of QE work in the same direction. Because of fixed rate mortgages and time lags, the main impact would come in 2023 and 2024, when cost pressures may already be easing, so the rise was necessary to stop inflation becoming embedded but was not sufficient on its own.

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