

Surname <i>StemUp Model Solution</i>	Centre Number	Candidate Number
First name(s)		2



GCE AS

B520U10-1



MONDAY, 13 MAY 2024 – MORNING

ECONOMICS – AS component 1
Introduction to Economic Principles

1 hour

For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1.	6	
2.	11	
3.	6	
4.	9	
5.	8	
6.	9	
7.	11	
Total	60	

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01

ADDITIONAL MATERIALS

A calculator.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen. Do not use gel pen or correction fluid.

You may use a pencil for graphs and diagrams only.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** questions.

Write your answers in the spaces provided in this booklet. If you run out of space, use the additional page(s) at the back of the booklet, taking care to number the question(s) correctly.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets at the end of each question or part-question.

You are reminded of the necessity for good English and orderly presentation in your answers.



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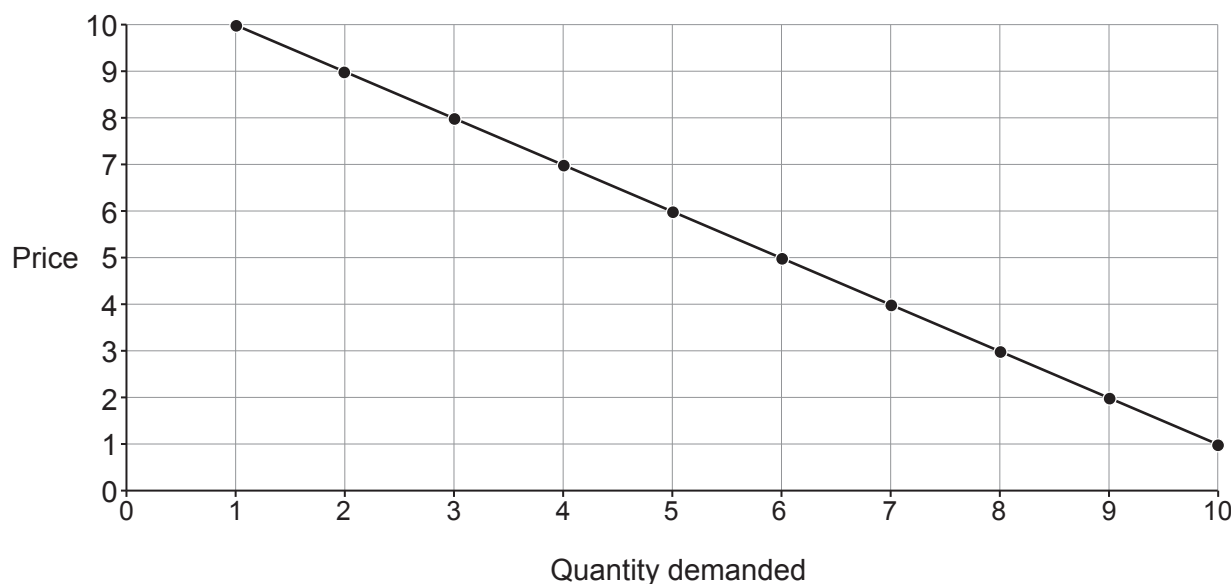
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Answer **all** the questions in the spaces provided.

1. Using calculations in your answer, outline how price elasticity of demand changes along this demand curve. [6]



PED measures the responsiveness of quantity demanded to a change in price: $PED = \frac{\% \Delta Q_d}{\% \Delta P}$.

Top of the curve, P falls from 10 to 9: $\% \Delta Q_d = (2 - 1)/1 \times 100 = +100\%$, $\% \Delta P = (9 - 10)/10 \times 100 = -10\%$, so $PED = +100 \div -10 = -10$, price elastic as it is greater than 1 (ignoring the sign).

Bottom of the curve, P falls from 2 to 1: $\% \Delta Q_d = (10 - 9)/9 \times 100 = +11.1\%$, $\% \Delta P = (1 - 2)/2 \times 100 = -50\%$, so $PED = 11.1 \div -50 = -0.22$, price inelastic (less than 1).

So although the slope is constant, PED is not: demand becomes more price inelastic moving down the curve from left to right (-10 to -0.22) and more elastic moving up it, as the same 1 unit change is a large % of a small Q but a small % of a large Q. At the midpoint (P = 5.5) $PED = -1$, unit elastic.



2. In 2021 a shop in Australia sold 3 main products as shown in **Table 1**.

Table 1:

Product type	% of sales (in 2021)	Estimated income elasticity of demand
Product 1	55	-2.1
Product 2	5	+0.2
Product 3	25	-0.3

- (a) Using the data in column 3 of **Table 1**, outline the differences between the types of products sold by the shop using income elasticity of demand. [5]

Income elasticity of demand (YED) measures the responsiveness of quantity demanded

to a change in real income: $YED = \% \Delta Q_d \div \% \Delta Y$. Positive YED = normal good,

negative = inferior good; above 1 (ignoring the sign) = income elastic, below 1 =

income inelastic.

Product 1 (-2.1) is an inferior good (demand falls as income rises) and income

elastic: a 1% rise in income cuts demand by 2.1%, more than proportionately.

Product 2 (+0.2) is a normal good, but income inelastic (a necessity): a 1% rise in

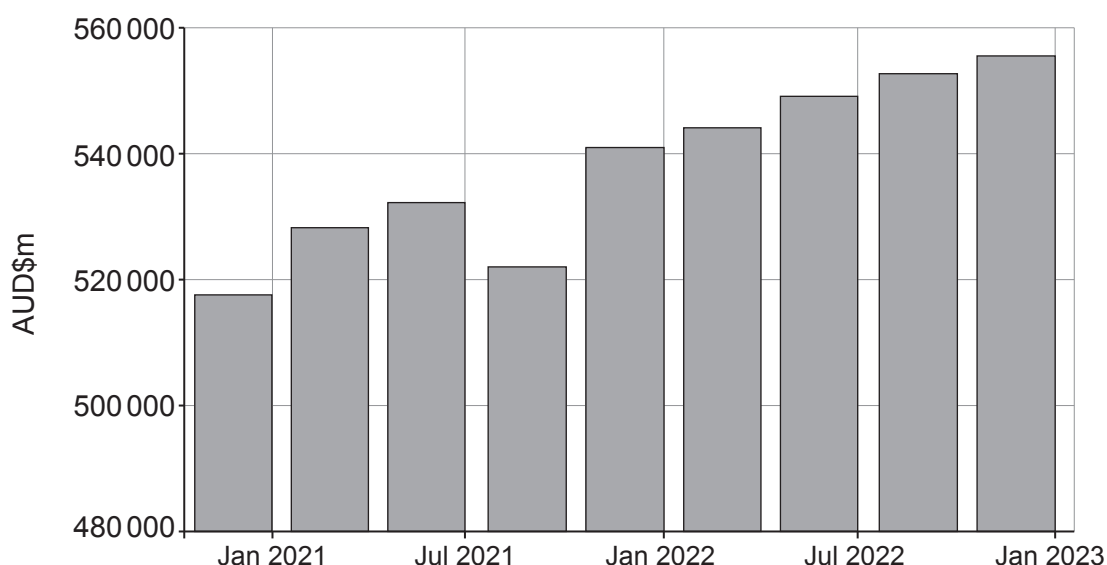
income raises demand by only 0.2%.

Product 3 (-0.3) is also an inferior good, but unlike Product 1 it is income inelastic: a

1% rise in income cuts demand by only 0.3%.



Figure 1: Australian Real GDP between 2021 and 2023 is shown below in AUD\$m



- (b) Using **Table 1** and **Figure 1**, consider whether the change in Australian Real GDP between 2021 and 2023 will be harmful for the total revenue of the shop. [6]

Real GDP rises from about \$518 000m (Jan 2021) to \$556 000m (Jan 2023), about +7.3%, so real incomes rise (apart from a dip to \$522 000m in late 2021).

As $TR = P \times Q$, 80% of sales are inferior goods (Products 1 and 3), so as incomes rise consumers switch to better goods, demand shifts left and Q and TR fall at a given price. Demand for Product 1 falls by about $7.3 \times 2.1 = 15.3\%$ and Product 3 by 2.2%; only Product 2 (5% of sales) rises, by just 1.5%. Weighted by sales, TR falls by about $0.55(15.3) + 0.25(2.2) - 0.05(1.5) \approx 8.9\%$.

However, the YED of the other 15% of sales is unknown and YEDs are only estimates; the late 2021 dip would briefly have raised revenue; income growth may be unequal, so low-income customers keep buying; and the shop could switch to normal goods. Overall it is harmful, as 55% of sales are income elastic inferior goods and Product 2 offsets little of the loss.



3. In July 2018 the world's two largest economies became engaged in a trade battle. The dispute saw the US and China impose tariffs on each other's goods.

Figure 2: US–China Trade War



US tariff on China exports/imports into US	
Worth of goods affected	\$375 bn

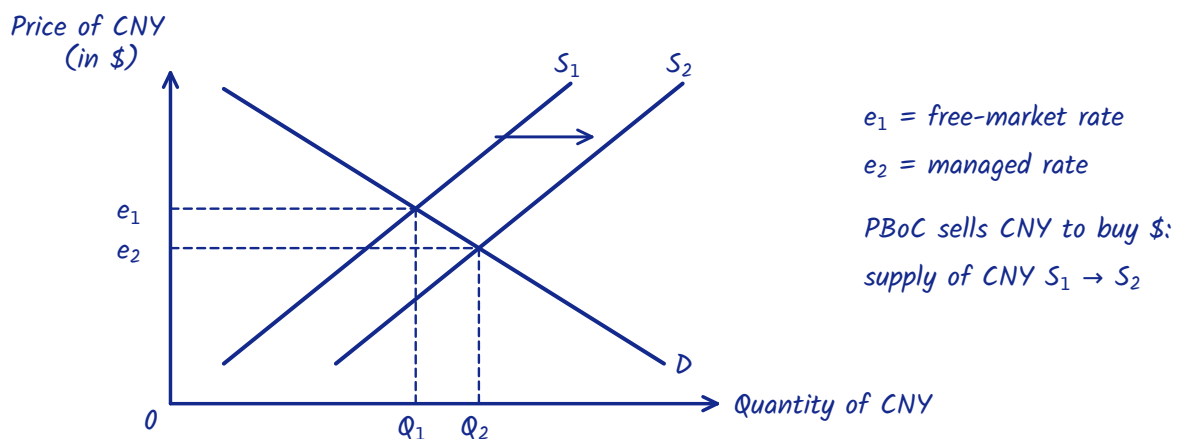


China tariff on US exports/imports into China	
Worth of goods affected	\$145 bn

In August 2019 the US labelled China as a 'currency manipulator' following an increase in the value of the dollar against the Chinese Yuan (CNY) from \$1 : 6.30 CNY to \$1 : 7.20 CNY.

The US Treasury department defines currency manipulation as being when a country's monetary authorities deliberately manage the exchange rate between their currency and the US dollar to gain "unfair competitive advantage in international trade".

- (a) Using a demand and supply diagram, outline how China might be able to manage their exchange rate below their free market exchange rate. [3]



China's central bank (PBoC) can sell Yuan and use them to buy US dollars on the foreign exchange market, adding to its dollar reserves. This increases the supply of CNY from S_1 to S_2 (and the demand for \$), so the price of the Yuan falls from the free-market rate e_1 to e_2 , below equilibrium. It could also cut interest rates, reducing hot money inflows and the demand for CNY.



- (b) Using **Figure 2**, explain why China's monetary authorities would argue that the recent increase from \$1 : 6.30 CNY to \$1 : 7.20 CNY is not the result of any management of the exchange rate. [3]

Figure 2: the US put tariffs on \$375bn of Chinese exports, but China on only

\$145bn of US goods. Tariffs raise the price of Chinese goods in the US, so US

demand for Chinese exports falls, and so does demand for Yuan to pay for them.

Demand for CNY falls by much more than China's demand for dollars to buy US

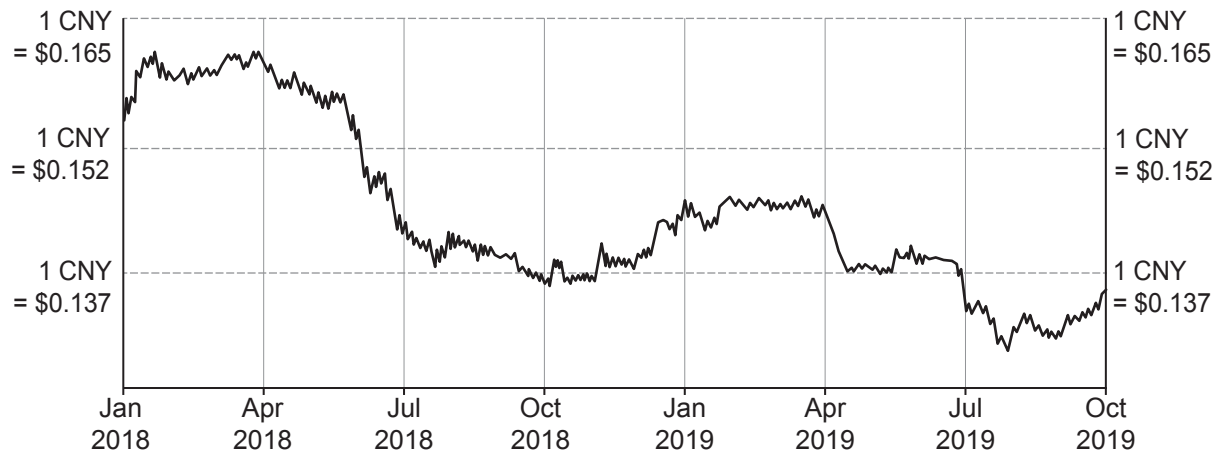
imports, so market forces alone made the dollar appreciate from 6.30 to 7.20

CNY, a rise of $(7.20 - 6.30)/6.30 = 14.3\%$, without any management.

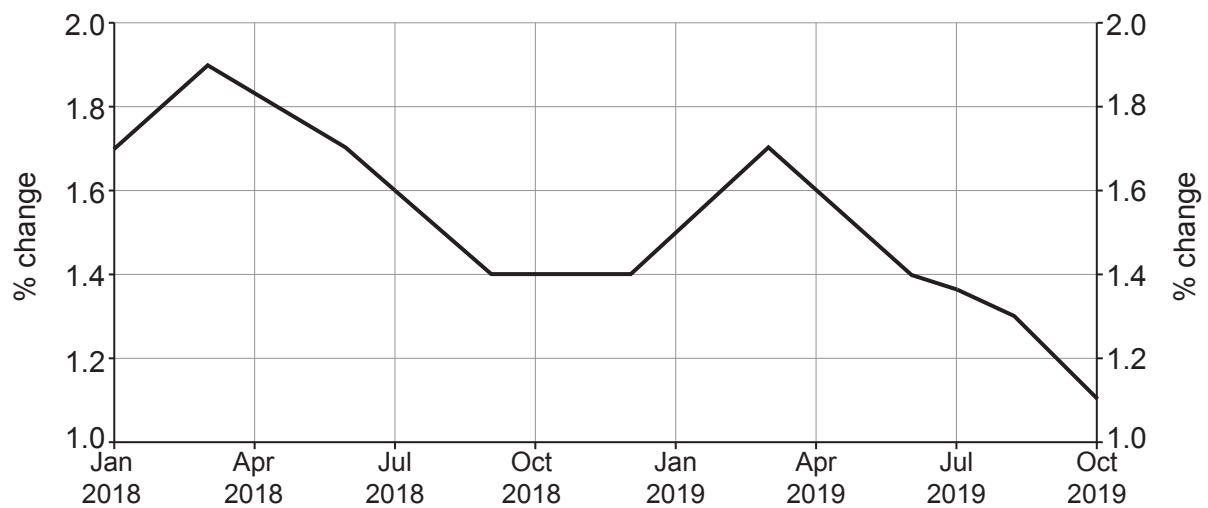


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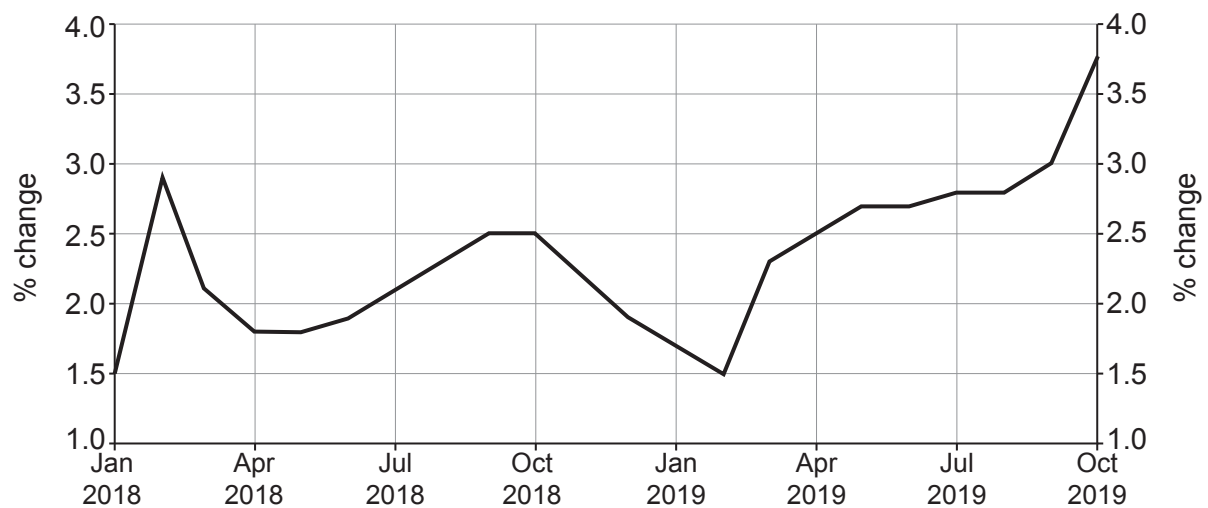
China: Exchange rate Chinese Yuan (CNY) vs US dollar(\$)



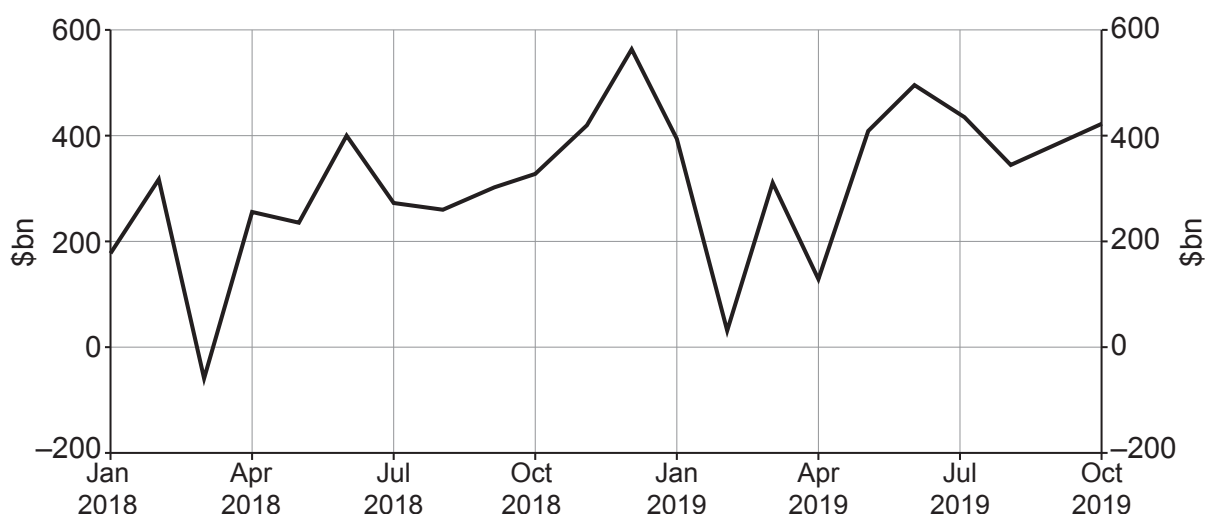
China: Annual Real GDP growth rate (% change)



China: Inflation (% change)



China: Net exports (\$bn)



Using the data and economic analysis, discuss the strength of the relationship between China's exchange rate and its economic growth, inflation and net exports between January 2018 and October 2019.

[9]

The exchange rate is the price of one currency in terms of another. In theory, a depreciation of the CNY makes Chinese exports cheaper in \$ and imports dearer, so if demand is price elastic net exports rise, increasing $AD = C + I + G + (X - M)$, raising real GDP growth and inflation (demand-pull, plus cost-push from dearer imported raw materials). An appreciation should do the reverse.

The data partly supports this. From Apr to Oct 2018 the Yuan fell sharply from about 1 CNY = \$0.161 to \$0.137. Inflation rose from 1.8% to 2.5% and net exports rose from about \$240bn to \$330bn, peaking at about \$570bn in Dec 2018. Again, from Apr to Aug 2019 the CNY fell to about \$0.134, inflation rose from 2.7% to 3.8% by Oct 2019 and net exports reached about \$500bn in Jun 2019. In the appreciations (Feb to Apr 2018, and Nov 2018 to Feb 2019 back up to about \$0.145) inflation fell, from 2.9% to 1.8% and from 2.5% to 1.5%, so this relationship looks fairly strong.

However, the link with growth is the opposite of theory: in the 2018 depreciation real GDP growth fell from 1.9% to 1.4%, and in the 2019 depreciation from 1.7% to 1.1%, while growth rose to 1.9% and 1.7% when the Yuan was strong. Net exports are also very volatile (-\$60bn in Mar 2018, \$30bn in Feb 2019) with no big exchange

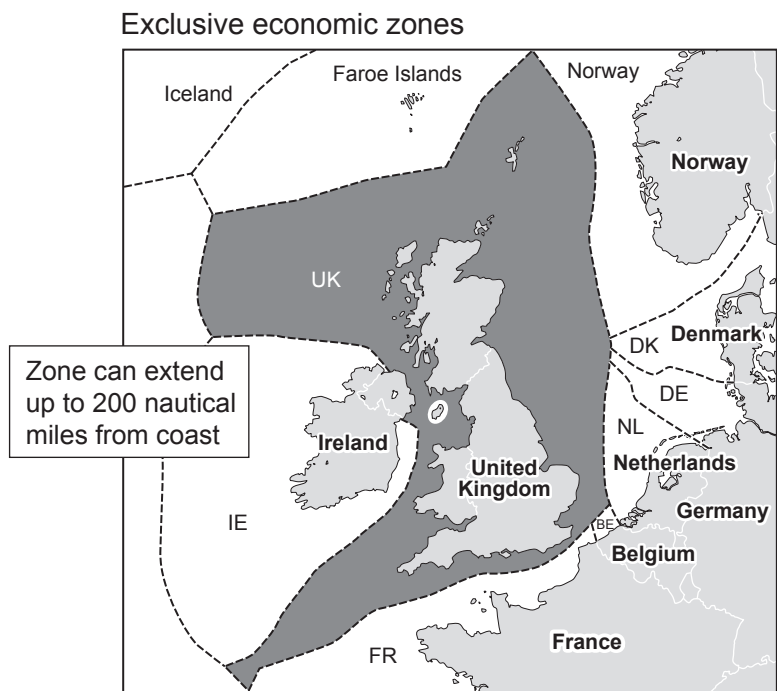


5. As a member of the EU (an economic and political union of European countries) and until 31 January 2021 the UK complied with EU regulations.

These included the Common Fisheries Policy (CFP) with catch limits on fish, with a view to maintaining sustainable stocks.

Concerns have been expressed about the number of people who can fish in UK waters after leaving the EU.

Note: the 2-letter country code for Germany is DE



To what extent will an absence of private property rights lead to market failure now that the UK has left the EU? [8]

Market failure occurs when the free market allocates resources inefficiently, so the socially optimal output is not produced and there is a welfare loss. Private property rights are the legal ownership of a resource and the right to control and exclude others from its use.

Fish in the open sea are a common resource: non-excludable but rival, as a fish caught by one boat cannot be caught by another. With no owner, each fisher maximises their own private benefit and ignores the cost their catch imposes on other fishers and future generations by reducing the breeding stock (the tragedy of the commons). Fish are over-consumed, stocks are depleted and there is a welfare loss, a negative externality.

In the EU, the Common Fisheries Policy acted as a substitute for property rights, with catch limits to keep stocks sustainable. Since the UK left on 31 January 2021, the concern in the case is that more people can fish in UK waters, which the map shows extend up to 200 nautical miles from the coast, so overfishing and market failure could increase.

However, the extent depends on whether the UK replaces the CFP with its own quotas



6. Policies were proposed in 2020 to decrease the consumption of demerit goods, including:

- A review of traffic light labelling on food and drinks sold in shops.
- Greater incentives for GPs to increase the use of apps and exercise-on-referral to a fitness program including cycling.
- From 2025, a ban on junk food advertising on television before 9pm.
- From 2025, a ban on junk food 'buy one get one free' deals.

Critics of the policies have warned they will lead to higher prices, higher unemployment and will lower the rate of economic growth.

Evaluate whether the proposed policies are likely to lead to higher prices, higher unemployment and a lower rate of economic growth.

[9]

Higher prices: banning 'buy one get one free' deals removes an effective price cut, so the average price paid per unit of junk food rises. A traffic light labelling review could force firms to redesign and reprint packaging and menus, raising costs of production and shifting supply left, so prices rise. However, shops may simply discount single items instead, and relabelling is a small one-off cost, so any rise is likely to be small and limited to junk food, not a rise in the general price level (inflation).

Higher unemployment: the advertising ban before 9pm, clearer labels and GP referral to apps and exercise such as cycling aim to reduce demand for demerit goods. Lower demand for junk food reduces the derived demand for labour in its manufacture, sale and TV advertising, so some workers may become structurally unemployed. However, this depends on the size of the fall in demand, which may be small as junk food is habit-forming and price inelastic; food production is capital intensive so few jobs depend on it; and spending will switch to healthy food, gyms and bicycles, creating jobs there.

Lower economic growth: if unemployment rises, consumption falls, and lower expected profits may cut firms' investment, reducing AD ($C + I$) and actual growth; advertising spending, part of GDP, may fall too. However, this sector is a tiny part of GDP, and fiscal policy, monetary policy and global conditions have far bigger effects on AD. In



7. In a lower-skilled football competition consisting of teams with 28 players, the average wage per player has increased from £462 per week in 1984 to £4700 per week in 2020.

Recently the regulators of the competition introduced a total wage cap (a maximum total wage cost for labour). The total wage cap was set at £2.5m for each team per year.

Some teams commented that the total wage cap was “too low”.

- (a) Using calculations in your answer, explain why the total wage cap in 2020 might have been said to be “too low”. [4]

Maximum wage per player = £2.5m ÷ 28 = £89 285.71 per year ÷ 52 = £1717.03 per week.

Current wage bill = £4700 × 52 = £244 400 per player per year × 28 = £6 843 200 (£6.84m).

The cap is £4.34m below the current wage bill, only about 37% of it; the cap allows £1717 a week against the current £4700, a cut of about 63%. With 28 players needed, teams would have to cut wages drastically or reduce their squads, so the cap is too low.

In a higher-skilled football competition with elite players, pre-1961 there was a maximum price of labour (wage). The table below shows the real wage changes from 1961:

	Elite player real wage per player per week
In 1961 before removal of the maximum price of labour (wage)	£570
In 2010 average wage	£16 120
In 2023 average wage	£60 000

Recently the sport has signed multi-million-pound TV deals, which generates more revenue for the teams.

The elasticity of supply of labour for the elite sports players is said to be inelastic.



- (b) Using a diagram in your answer, discuss if the removal of the maximum price of labour was the main cause of the wage growth of elite players since 1961. [7]

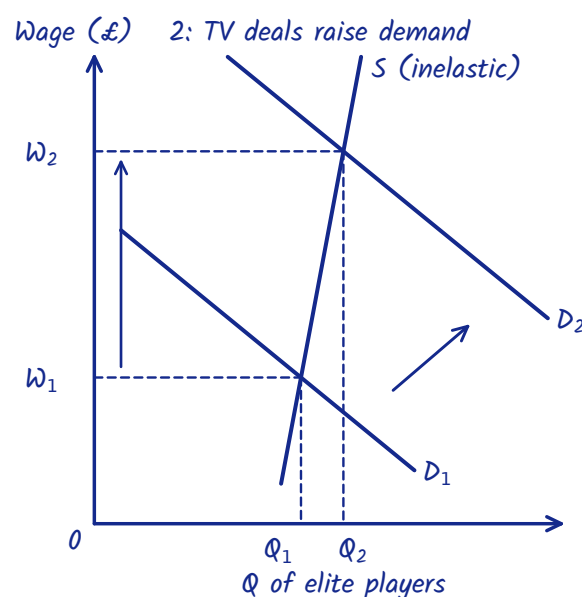
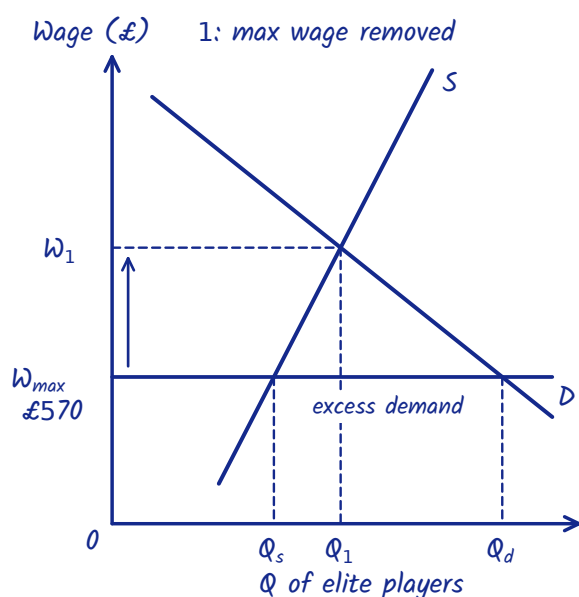


Diagram 1: the maximum wage of £570 (w_{max}) was set below the equilibrium wage w_1 , causing an excess demand for elite players ($Q_d - Q_s$). Removing it in 1961 let the wage rise to w_1 , so removal was necessary for wage growth.

Diagram 2: but most growth came later. Real wages rose from £570 to £16 120 by 2010 (+2728%) and to £60 000 by 2023 (+272% in just 13 years).

Multi-million-pound TV deals raised teams' revenue and so the value of elite players, shifting demand right from D_1 to D_2 . As the supply of elite players is inelastic (rare talent, years of training), wages rise greatly from w_1 to w_2 with only a small rise in quantity, Q_1 to Q_2 .

Evaluation: removal was necessary, as without it wages would have stayed capped near £570 however much demand rose (unless clubs paid bonuses). But it only explains a one-off rise to the free-market wage in the 1960s, not 60 years of growth. So removal was an enabling cause; the main cause of the huge real wage growth since 2010 was rising demand from TV revenue combined with inelastic supply.

END OF PAPER



Question number	Additional page, if required. Write the question number(s) in the left-hand margin.
4.	rate change, and inflation kept rising from Mar 2019 while the CNY was still strong, so other factors matter. The main one is the trade war: US tariffs on \$375bn of Chinese goods cut demand for Chinese exports whatever the price, which explains why the second depreciation raised net exports less and why growth fell, as confidence and investment were hit. Time lags (J-curve) mean the effects of a depreciation take months to appear, growth also depends on C, I and G, and causation may even run the other way, with slower growth and the trade war causing the Yuan to fall. Rising food prices could also explain the 2019 inflation. Overall, the relationship with inflation is fairly strong and with net exports moderate and short-term, but with economic growth it is weak, as the effect of the trade war dominated over this period.
5.	and licences in its exclusive economic zone, which in effect creates property rights; leaving gives the UK control of a large zone, so it could exclude foreign boats and reduce overfishing. It depends on cooperation with the EU and Norway, as fish migrate across zones (e.g. to Ireland, France, Denmark) so a UK quota alone cannot protect them, on monitoring and enforcement against illegal fishing, and on investment in alternatives such as fish farms. The CFP was itself criticised for overfishing, so leaving may not be worse. Other common resources such as the atmosphere could also lack protection after leaving the EU. Overall, without enforceable property rights market failure is very likely, but because the UK can now set and enforce its own quotas the extent depends mainly on UK regulation and international agreement, not on leaving the EU itself.



Question number	Additional page, if required. Write the question number(s) in the left-hand margin.	Examiner only
6.	<i>the long run a healthier population may raise labour productivity and cut NHS costs and sick days, increasing LRAS and potential growth.</i> <i>Overall, the policies may cause small price rises and some job losses in the junk food sector in the short run, but are unlikely to cause noticeably higher inflation, unemployment or lower growth for the whole economy, and the long-run effect on growth could be positive. It depends on how much behaviour changes and how quickly firms switch to healthier products.</i>	



Examiner
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