

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



GCE AS

B520U10-1



TUESDAY, 13 MAY 2025 – MORNING

ECONOMICS – AS component 1
Introduction to Economic Principles

1 hour

For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1.	6	
2.	4	
3.	7	
4.	13	
5.	13	
6.	17	
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.

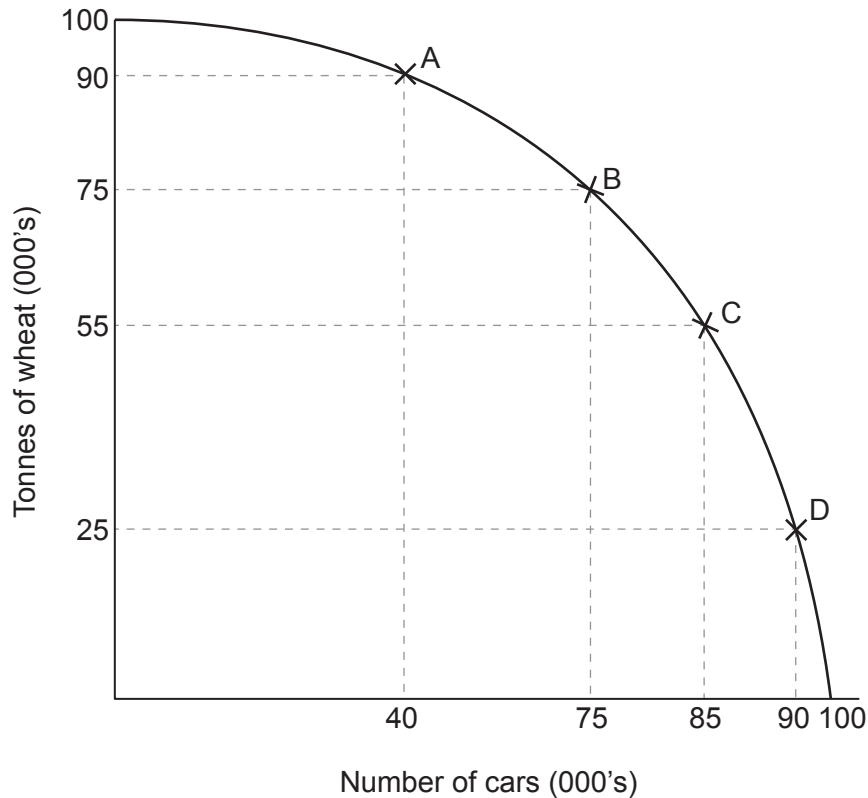
You are reminded of the necessity for good English and orderly presentation in your answers.



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

1. The diagram below shows a production possibility frontier (PPF) for a country producing wheat and cars.



- (a) State what is meant by a production possibility frontier.

[2]

A PPF is a curve showing the maximum possible combinations of two goods or services (here wheat and cars) that an economy can produce when all its resources are fully and efficiently employed, with given technology.



(b) Using calculations in your answer, outline why the PPF is curved. [4]

The PPF is curved due to imperfect factor substitution: resources are not equally suited to both goods, so those moved from wheat into cars are less productive in car production, and the opportunity cost of each extra car rises.

A to B: +35 000 cars, -15 000 t wheat, so 1 car = $15\,000 \div 35\,000 = 0.43$ t of wheat.

B to C: +10 000 cars, -20 000 t wheat, so 1 car = $20\,000 \div 10\,000 = 2$ t of wheat.

C to D: +5 000 cars, -30 000 t wheat, so 1 car = $30\,000 \div 5\,000 = 6$ t of wheat.

Opportunity cost rises (0.43, 2, 6 t per car), so the PPF bows outwards.



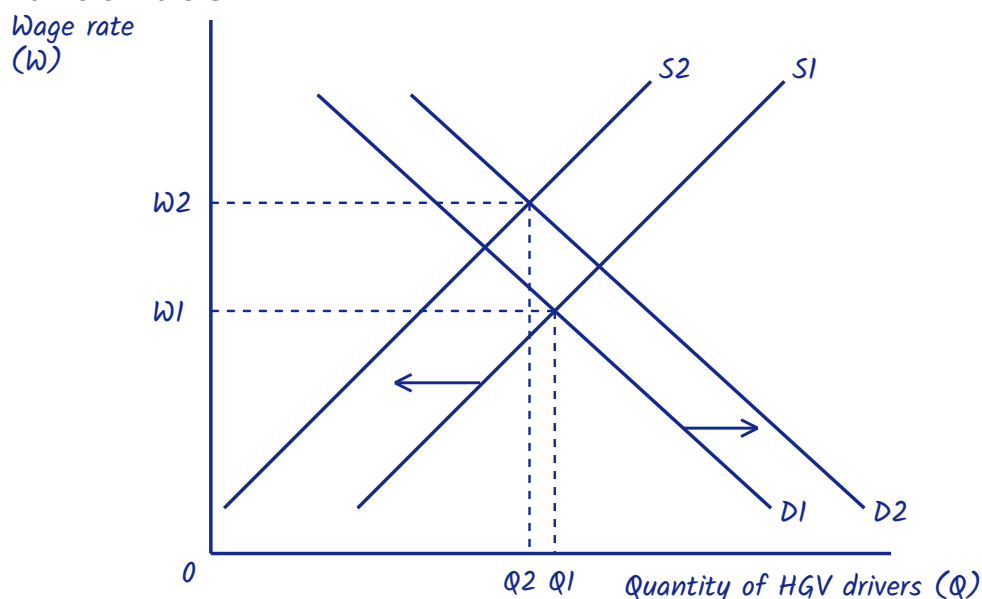
2. Heavy Goods Vehicle (HGV) drivers transport goods between locations. They move items for firms and customers locally, nationally and internationally.

In the next few years there could be:

- a decrease in supply of labour as a large proportion of the workforce will leave due to retirement
- an increase in demand of labour as demand for them to transport goods between locations continues to grow due to e-commerce.

Using a labour market diagram, outline the likely impact of these changes on the wages of HGV drivers in the UK.

[4]



Retirement reduces the supply of drivers, shifting $S1$ left to $S2$, and growing e-commerce raises the derived demand for drivers, shifting $D1$ right to $D2$. At the old wage $w1$ there is now excess demand for drivers (a labour shortage), so firms compete for scarce drivers and bid wages up from $w1$ to $w2$. Both shifts push wages up, so the rise is large; the change in employment ($Q1$ to $Q2$) is small and depends on the relative size of the shifts.



3. Healthcare systems differ across the world.

South Africa has both a private healthcare system and a state healthcare system that operate alongside each other.

Most people rely on the state system for their healthcare, which is subsidised by the government (40% of cost for those on middle incomes and 100% for those on lower incomes). However, an estimated 80% of doctors work in the private system.

The UK has a system of state provision for its NHS healthcare system, available free for patients when they need it. It is funded through taxes. Around 11% of the UK population has private health insurance.

Using the data, discuss whether countries such as South Africa should follow the UK's example of state provision of healthcare that is free for all patients when needed.

[7]

Healthcare is a merit good: people under-estimate its benefits and it gives positive externalities (a healthier, more productive workforce), so in a free market it is under-consumed. Free provision removes the price barrier and raises consumption towards the social optimum. In South Africa middle earners still pay 60% of the cost (only a 40% subsidy), so many may go untreated, whereas the UK's tax-funded NHS is free for all and only 11% need private insurance. It also improves equity, letting poorer people stay healthy, keep working and earn a stable income. However, it depends on government finances: South Africa only fully subsidises low earners (100%), possibly because its tax revenue cannot fund more, so free care for all means higher taxes or less spending elsewhere. It also depends on capacity: with 80% of doctors in private care, the state system is under-resourced, so a zero price would raise demand far above supply, causing long waiting lists and overuse. On balance, South Africa should move towards the UK model gradually, starting with free emergency and primary care, as full free provision only works once tax revenue and the number of state doctors rise.



4.

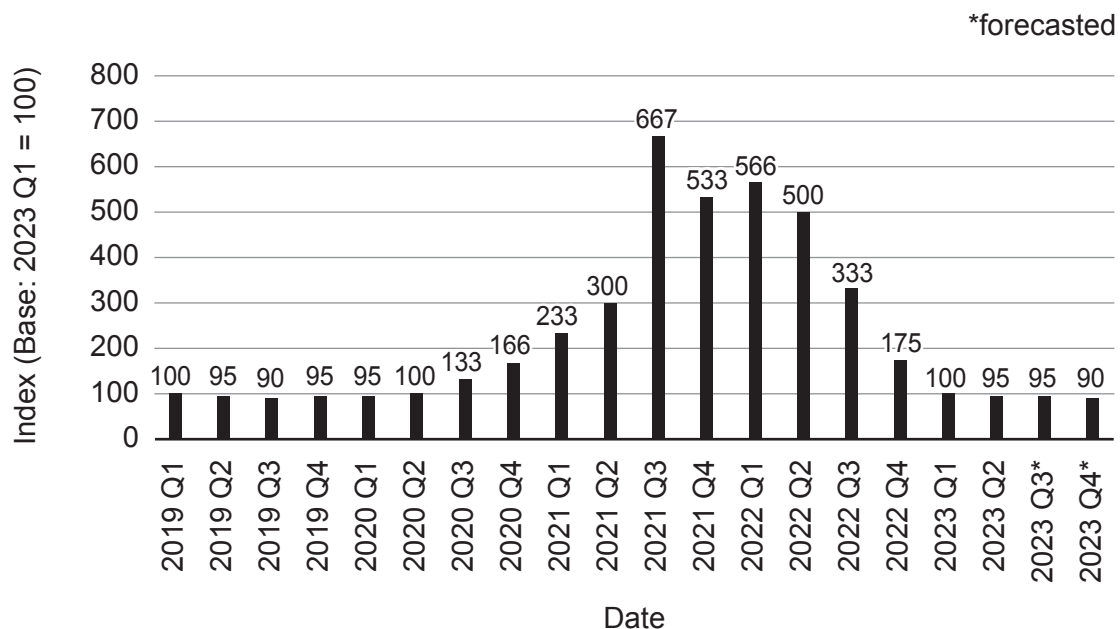


Freight is the term used to describe goods or cargo carried by ship, train, truck, or airplane.

Shanghai is a major seaport hub in China for the transport of freight by ship.

The Shanghai containerised freight price index is a widely used index that reflects the sea freight prices for transporting goods from China to other countries. Its fluctuations give an indication of changes in the price of transporting goods by sea from China to other countries.

Figure 1: Shanghai containerised freight price index 2019–2023



(a) Describe how the price of transporting goods changes between 2019 and 2023. [3]

From 2019 Q1 to 2020 Q2 the index stayed between 90 and 100, so freight prices were the same as or up to 10% lower than in 2023 Q1 (base = 100). Prices then rose very rapidly, from 100 in 2020 Q2 to a peak of 667 in 2021 Q3, a rise of $(667 - 100) \div 100 \times 100 = 567\%$. They stayed high (500 to 566) until 2022 Q2, then fell sharply to 333, 175 and 100 in 2023 Q1, an 85% fall from the peak. After 2023 Q1 prices are forecast to fall slightly further, to 95 (5% below 2023



Q1) and then 90 (10% below) in 2023 Q4.

- (b) Explain how the price changes of shipping during 2021 could have affected the ability of both households and firms to achieve their objectives. [4]

Households aim to maximise utility. In 2021 the index rose from 233 to 667, so imported goods became dearer; with fixed incomes households buy fewer goods and total utility falls. Firms aim to maximise profit. Importing firms face higher costs and, if they cannot pass them on fully, their profit margins fall. Shipping firms gain, as higher freight prices raise their revenue and profits.

Figure 2: Imports as a % of GDP for the UK (2022)

UK	36.2%
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- (c) Using **Figures 1 and 2**, consider the impact that the changes in the Shanghai price index could have on the inflation rate in the UK. [6]

Figure 1 shows freight prices surged in 2021: the index rose from 166 in 2020 Q4 to 533 in 2021 Q4, a 221% rise, peaking at 667 in Q3. Figure 2 shows imports are 36.2% of UK GDP, so over a third of spending is on goods carrying these transport costs. Higher shipping costs raise firms' costs of imported raw materials, components and finished goods, shifting SRAS left. Firms pass these costs on as higher prices to protect profit margins, so the general price level rises faster: cost-push inflation, which spreads as imported inputs are used across many industries.

However, it depends on the time period. From 2022 Q2 the index fell from 500 to



100 in 2023 Q1 (an 80% fall) and is forecast to fall to 90, which should cause disinflation or even deflationary pressure. It also depends on other costs: if energy or raw material prices fall, the effect is offset, but if workers win higher wages to keep up with prices, inflation expectations become embedded and inflation stays high after freight costs fall. The Bank of England's interest rate response also matters.

Overall, the 2021 surge is likely to have raised UK inflation significantly because imports are 36.2% of GDP, but the effect is temporary and should reverse as freight prices return to the base level.



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5. The UK's low productivity has been a problem for many years, leading to a productivity gap between the UK and other economies.

A productivity gap is a sustained difference in measured output per worker between one country and another.

Figure 3: Productivity as measured by GDP per hour in dollars (\$) for the UK and other economies in 2022.

Country	GDP per hour worked (\$)
France	83.4
Germany	86.7
Japan	52.0
UK	73.3
United States	89.9

Recent UK budgets have outlined the following initiatives:

- Companies which invest in their business's plant and machinery between 2023 and 2025 can significantly reduce their tax bills.
- Incentives for firms to hire apprentices to rise to £3000.
- An extra £126m for new vocational training.
- New visa scheme to help start-ups and technology firms source talented labour from overseas. Immigration rules to be relaxed for five roles in the construction sector, to ease labour shortages.

- (a) With reference to **Figure 3**, outline **two** reasons why the UK Government wishes to achieve increased productivity. [4]

Figure 3 shows a productivity gap: UK output per hour of \$73.3 is \$10.1 below

France, \$13.4 below Germany and \$16.6 below the US (only Japan, \$52.0, is lower).

1. Higher productivity lowers average (unit labour) costs, so UK firms can cut prices and become more internationally competitive against French, German and US firms, raising exports.

2. Higher productivity raises the economy's productive capacity (LRAS shifts right), giving faster long-run economic growth, and lets firms pay higher real wages, raising living standards towards US levels.



- (b) To what extent will the budget initiatives help the UK close the productivity gap shown in **Figure 3**? [9]

The initiatives are supply-side policies aimed at raising output per hour worked, the measure in Figure 3.

The tax relief for investing in plant and machinery between 2023 and 2025 cuts the cost of investment, so firms buy more and newer capital. With more and better capital per worker, each worker produces more per hour, raising productivity and narrowing the \$16.6 gap with the US. Apprentice incentives of £3000 and the extra £126m for vocational training raise human capital: better-skilled workers are more productive and use new technology better. The visa scheme for start-ups and technology firms brings in talented labour and enterprise, supporting R&D and innovation, while relaxed rules for five construction roles ease labour shortages so projects are completed and output rises. Together these shift LRAS to the right. However, the extent depends on several factors. Firms may claim the tax relief for investment they would have made anyway, or in assets that barely raise productivity, and large firms may already reduce their tax through avoidance; investment also depends on business confidence. Training depends on the quality of the schemes and whether young people find apprenticeships attractive, and £126m is small in an economy of over £2 trillion. The visa scheme depends on how many visas are issued. The policies also involve long time lags, and the tax relief ends in 2025.

Finally, the gap is relative: France, Germany and the US may also be raising productivity with their own supply-side policies, so UK productivity could rise without the gap closing.

Overall, the initiatives should raise UK productivity to some extent, especially



6. Australia's main exports are composed of beef, wine and other commodities.

Imports of wine from Australia into China have risen significantly in the last decade. As a result, China imposed tariffs of 120% on wine imported from Australia in 2021.

The original price of a bottle of wine in Chinese currency	40 Yuan
Original quantity demanded in China per year	160m bottles
PED for Australian-imported wine in China	-0.6

- (a) (i) State the meaning of a tariff.

[1]

A tariff is a tax charged on goods imported from foreign countries.

- (ii) Assuming firms pass on the full tariff, calculate the new quantity demanded of Australian wine in China.

[3]

$$\% \Delta Q_d = PED \times \% \Delta P = -0.6 \times 120\% = -72\%$$

$$\text{New } Q_d = 160m \times (1 - 0.72) = 160m \times 0.28$$

$$\text{New quantity demanded} = 44.8m \text{ bottles per year}$$

- (iii) Calculate the tax revenue raised for the Chinese government.

[3]

$$\text{Tariff per bottle} = 120\% \times 40 \text{ yuan} = 48 \text{ yuan}$$

$$\text{Tax revenue} = 48 \text{ yuan} \times 44.8m \text{ bottles}$$

$$= 2150.4m \text{ yuan (about 2.15 billion yuan)}$$



During 2021 the UK Government agreed the terms for a new trade deal with Australia. Under the deal, Australia will be able to send a quota of agricultural goods per year to the UK, such as beef, tariff-free. These quotas will increase for the next 15 years, after which there will be no quotas or tariffs on agricultural produce.

The UK government said the free trade deal would also improve opportunities for British exports to Australia and was an important step towards signing further free trade deals with other countries. For example, the Canadian government expressed a wish to remove barriers to trade with the UK, including those faced by Canadian exporters of dairy, beef and wheat.

Figure 4: UK regional exports and imports to Australia in 2020.



- (b) (i) State the meaning of a quota.

[1]

A quota is a limit on the quantity (volume) of a good that can be imported into a country over a period.

- (ii) The UK government stated that British producers have nothing to fear from the free trade deal with Australia.

Using **Figure 4**, to what extent do you agree with this statement?

[9]

Figure 4 shows that in 2020 UK goods exports to Australia were £3.74bn, against imports of only £1.56bn, a surplus of £2.18bn. As a net exporter, the UK is likely to gain overall: as Australian tariffs and quotas are removed, UK



exports become cheaper and more price competitive in Australia, raising demand, revenue and profits, or firms can keep prices and enjoy bigger profit margins. Every region except the South East exports more to Australia than it imports, e.g. the North West exports £459m but imports only £81m (a £378m surplus) and the East £494m against £144m. UK firms importing Australian commodities also gain from lower costs, so they can increase supply.

However, some producers do have something to fear. UK beef and sheep farmers face more competition from tariff-free Australian quotas, which rise for 15 years before all quotas and tariffs disappear. Australian farms have large economies of scale and lower costs, so cheaper imports could reduce demand for UK-produced beef, cutting farmers' revenue and rural jobs. The South East is the only region with a deficit (exports £546m, imports £574m, -£28m), so its producers may face more competition, and Wales has the smallest surplus (£73m). The 2020 data also reflect existing barriers: once tariffs go, new Australian goods may become competitive. The deal is also a template: Canada wants to remove barriers for its dairy, beef and wheat exports, adding further competition for UK farmers.

It depends on the time scale: in the short run quotas limit imports, so the threat is small, but after 15 years there are no limits. It also depends on high transport costs from Australia and on whether UK consumers prefer British food for its quality and standards (non-price competitiveness).

Overall, I partly agree: most British producers, especially exporters in regions such as the North West and East, have little to fear and are likely to gain, but UK farmers face a real long-term threat, so nothing to fear is an overstatement for agriculture.

END OF PAPER



Question number	Additional page, if required. Write the question number(s) in the left-hand margin.
5 (b)	through capital investment, but as they are small and temporary they are unlikely to close a gap as large as \$16.6 per hour with the US; at best they may narrow the \$10.1 gap with France.



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