

Please write clearly in block capitals.

Centre number

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StemUp Model Solution

Forename(s)

Candidate signature

A-level ECONOMICS

Paper 3 Economic principles and issues

Monday 19 June 2017

Afternoon

Time allowed: 2 hours

Materials

For this paper you must have:

- the insert
- a calculator.

Instructions

- Answer **all** questions.
- Use black ink or a 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 you do not want to be marked.

Information

- There are 80 marks available on this paper.
- The marks for questions are shown in brackets.
- No deductions will be made for wrong answers.

For Examiner's Use	
Section	Mark
A	
B	
TOTAL	



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

Section A

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

Economic decision making and policies are influenced by value judgements because

- A all people are motivated by the desire to maximise their incomes.
- B economic analysis and decision making is assumed to be based on complete information.
- C they are based on the same methodology as the natural sciences.
- D they involve moral and political considerations as well as positive analysis.

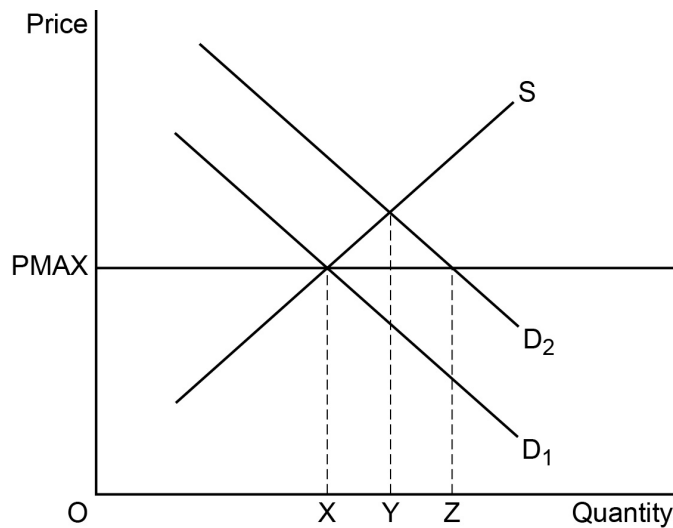


[1 mark]



0 2

The diagram below shows the original market demand and supply curves (D_1 and S) for loft insulation. Loft insulation reduces energy consumption.



The government wishes to meet its energy efficiency target by shifting the market demand curve for loft insulation from D_1 to D_2 . Which one of the following policies is most likely to enable the government to achieve its objective?

- A** A decrease in the rate of VAT on domestic gas and electricity used for home heating ☐
- B** A 'nudge' to households to install loft insulation by offering to clear lofts of unwanted items if insulation is installed ☒
- C** The introduction of a maximum price for loft insulation ☐
- D** The introduction of a subsidy paid to the firms installing loft insulation ☐

[1 mark]

0 3

The law of diminishing marginal utility states that

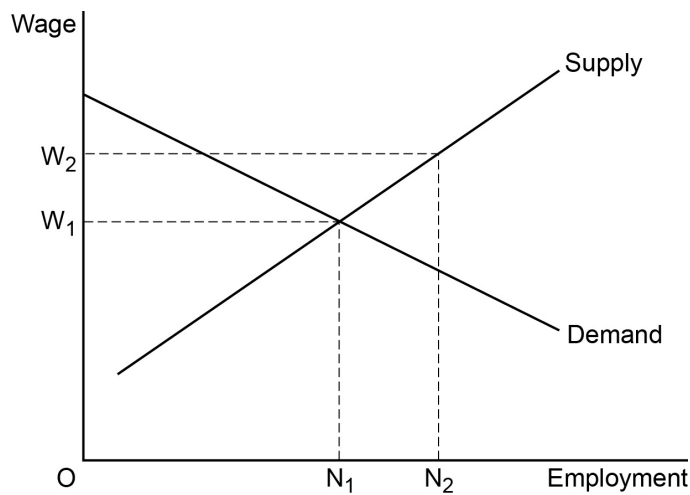
- A** as more of a product is consumed, the extra satisfaction will decline. ☒
- B** as more of all factors are employed, the additional output produced will fall. ☐
- C** as more variable factors are added to a fixed factor, the additional output produced will decline. ☐
- D** the total satisfaction from consuming a product will be maximised when marginal utility starts to fall. ☐

[1 mark]



0 4

The diagram below shows the market for bricklayers.



The original equilibrium wage is W_1 and the number of bricklayers employed is N_1 . Which one of the following events is most likely to increase the wage paid to bricklayers to W_2 and increase employment to N_2 ?

- A** A cut in bank rate leading to a fall in mortgage interest rates ☒
- B** A fall in the number of young people training as apprentice bricklayers ☐
- C** An improvement in working conditions in the construction industry ☐
- D** An increase in the wages paid to electricians in the construction industry ☐

[1 mark]



0 5

A firm employs three factors of production: capital, land and labour. The table below shows how the firm's output is affected by changing the amount employed of these factor inputs.

Units of output	Units of capital	Units of land	Labour (Number of workers)
500	20	40	60
1000	80	160	240
2000	140	280	420
3000	210	420	630
4000	300	580	860

The firm experiences constant returns to scale when it increases its output from

- A** 500 to 1000 units.
B 1000 to 2000 units.
C 2000 to 3000 units.
D 3000 to 4000 units.

☐
☐
☒
☐

[1 mark]

0 6

The table below shows possible differences between the meanings of the terms invention and innovation. Which combination, **A**, **B**, **C** or **D**, correctly identifies the difference between the meanings of these terms?

	Invention	Innovation
A	Applies to changes in goods only	Applies to changes in services only
B	Applies to changes in services only	Applies to changes in goods only
C	Discovering something entirely new	Turns the results of invention into a product
D	Turns the results of innovation into a product	Discovering something entirely new

☐
☐
☒
☐

[1 mark]

Turn over for the next question



0	7
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The table below shows the output, average total cost and average revenue for a firm.

Units of output	Average total cost (£)	Average revenue (£)
10	15	26
11	14	24
12	13	23
13	12	21

At which one of the following levels of output will the firm maximise its profits?

- A** 10 units
- B** 11 units
- C** 12 units
- D** 13 units

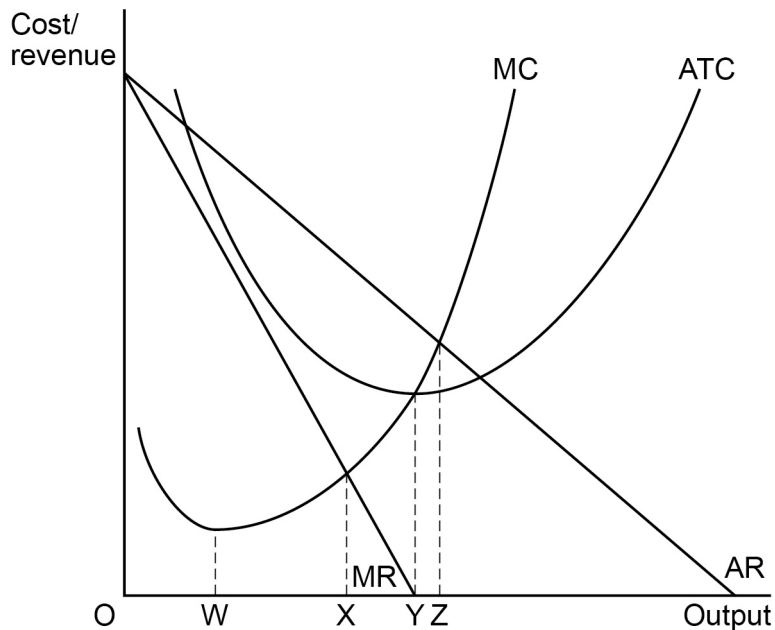
☐☐☒☐

[1 mark]



0 8

The diagram below shows the cost and revenue curves for a monopoly.



At which one of the following levels of output would the firm be productively efficient?

- A** OW
B OX
C OY
D OZ

☐
☐
☒
☐

[1 mark]

0 9

The marginal revenue product of labour is the

- A** addition to total revenue when the firm produces and sells an extra unit of output.
B amount produced per worker per time period.
C change in total output that is produced when one extra worker is employed.
D revenue gained by selling the extra output produced by employing one more worker.

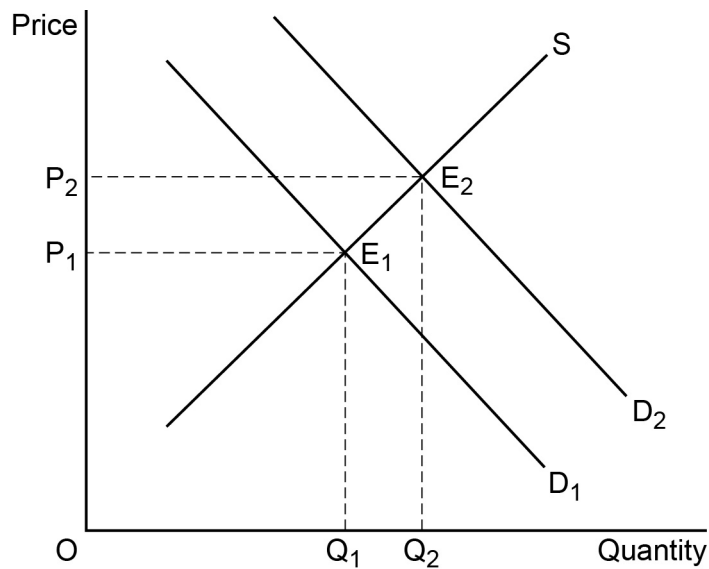
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☒

[1 mark]



1 0

The diagram below shows the demand curves (D_1 and D_2) and the supply curve (S) in the market for good X. The initial market equilibrium is at E_1 .



The increase in market demand from D_1 to D_2 results in a new market equilibrium at E_2 . The market mechanism that leads to the establishment of the new equilibrium is based on

- A** excess demand for good X at the initial price of P_1 .
- B** excess demand for good X at the new price P_2 .
- C** excess supply of good X at the initial price of P_1 .
- D** excess supply for good X at the new price P_2 .

☒
☐
☐
☐

[1 mark]

1 1

Which one of the following values for the Gini coefficient shows the greatest inequality?

- A** -0.5
- B** 0
- C** 0.5
- D** 1

☐
☐
☐
☒

[1 mark]



1 2

The tragedy of the commons can be applied to the fishing industry. What is the nature of this market failure?

- A** Over-fishing resulting in declining fish populations ☒
- B** The imposition of fishing quotas by the European Union ☐
- C** The positive externalities associated with fish consumption ☐
- D** The third-party effects on dolphins as a result of tuna fishing ☐

[1 mark]

1 3

Immobility of labour may lead to a misallocation of resources and market failure because

- A** a change in the pattern of demand results in structural unemployment. ☒
- B** the education and training needed to reduce labour immobility is a public good. ☐
- C** the government's target for the rate of inflation is too high. ☐
- D** the immobility of factors of production is a negative externality in production. ☐

[1 mark]

1 4

The following table shows the real GDP of an economy from 2012 to 2016.

Year	2012	2013	2014	2015	2016
Real GDP (£bn)	213	215	245	256	271

If the figures were converted to index form with 2013 as the base year, what would be the value of the index (to the nearest whole number) in 2016?

- A** 124 ☐
- B** 125 ☐
- C** 126 ☒
- D** 127 ☐

[1 mark]



1 5

The information below shows the changes in key economic indicators for a country over a period of one year.

Money GDP	Rate of inflation	Population increase	Gini coefficient
+6%	+4%	+1%	−8%

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

- A** External costs generated from economic activity have reduced the quality of life
- B** Real GDP per capita has fallen
- C** The distribution of income has become more unequal
- D** The standard of living of typical residents in the country has probably improved

☐
☐
☐
☒

[1 mark]

1 6

Assuming that the value of the marginal propensity to consume is 0.6, which of the following changes in national income would result from an increase in exports of £19bn?

- A** £31.7bn
- B** £47.5bn
- C** £76bn
- D** £114bn

☐
☒
☐
☐

[1 mark]



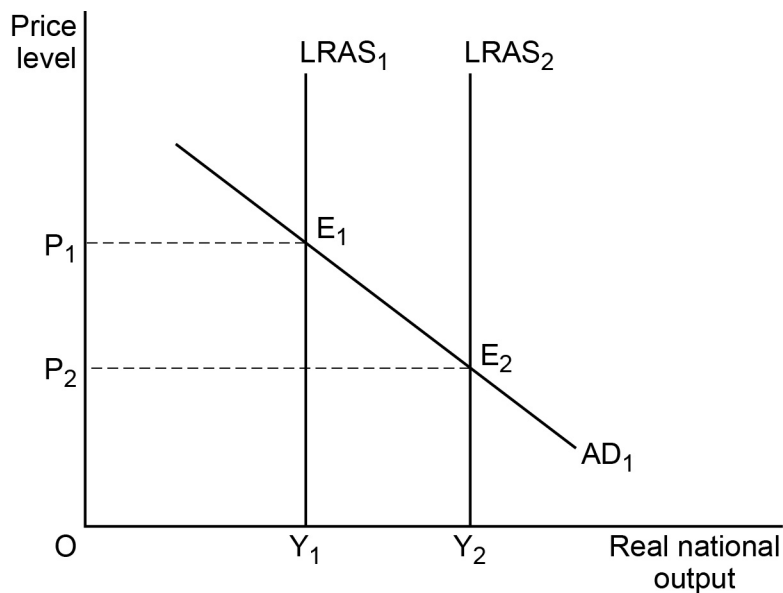
1 7

The primary measure of unemployment in the UK is based on the

- A** number of people joining the labour force minus the number of people leaving the labour force. ☐
- B** number of people not working who are of working age. ☐
- C** the number of people actively seeking work and available to start work. ☒
- D** proportion of the population of working age without a job. ☐

[1 mark]**1 8**

The diagram below depicts an aggregate demand (AD) curve and two long-run aggregate supply (LRAS) curves for an economy. The economy's initial equilibrium is at E_1 .



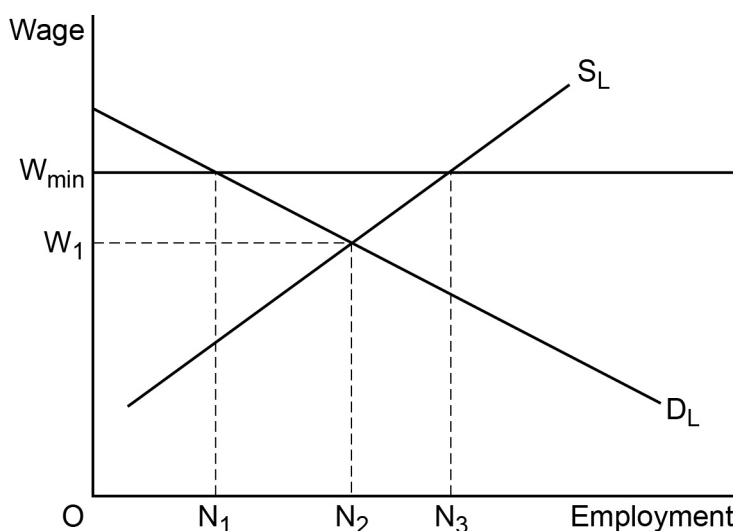
All other things being equal, the movement of the economy from its initial equilibrium at E_1 to E_2 is most likely to be caused by an increase in

- A** government borrowing. ☐
- B** labour productivity. ☒
- C** the rate of deflation. ☐
- D** money wage rates. ☐

[1 mark]

1 9

The diagram below represents the market for unskilled agricultural labourers where the demand for agricultural labourers is D_L and the supply is S_L . The trade union representing agricultural labourers has negotiated a minimum wage of $OW_{\min}$ for its members.



The effect of implementing a minimum wage of $OW_{\min}$ is that

- A** cyclical unemployment increases by $(ON_3 - ON_1)$. ☐
- B** frictional unemployment increases by $(ON_2 - ON_1)$. ☐
- C** real wage unemployment increases by $(ON_3 - ON_1)$. ☒
- D** the natural rate of unemployment increases by $(ON_2 - ON_1)$. ☐

[1 mark]

2 0

A bank makes a new loan to a customer. All other things being equal, which combination of events, **A**, **B**, **C** or **D**, shows what will happen?

	Bank's liabilities	Bank's assets	Money supply	
A	Increase	Increase	Increases	☒
B	Increase	Fall	Increases	☐
C	Fall	Increase	Falls	☐
D	Fall	Fall	Falls	☐

[1 mark]



2 1

A government issued bond has a nominal value of £100 and the annual coupon is £6. The bond has 35 years until maturity. Its current yield is 5%. The current market price of the bond is

A £100

☐

B £105

☐

C £106

☐

D £120

☒

[1 mark]

2 2

Which one of the following combinations, **A**, **B**, **C** or **D**, best distinguishes between the functions of the money market and the capital market?

	Money market	Capital market	
A	The market for issuing new shares	The market where foreign currency is exchanged at some point in the future	☐
B	The market where commercial banks provide short-term loans to each other	The market where businesses obtain funds to finance long-term growth	☒
C	The market where foreign currencies are traded	The main market in which commercial banks lend to each other	☐
D	The market where the government finances its budget deficit by issuing bonds	The market where short-term debt is converted into equity finance	☐

[1 mark]

Turn over for the next question



2 3

The table below shows the marginal income tax rates in an economy for 2016.

Table: Marginal income tax rates for every \$1 of income

Taxable Income	Income tax rates 2016
From \$0 to \$10 000	0%
From \$10 001 to \$30 000	10%
From \$30 001 to \$50 000	30%
\$50 001 and above	45%

How much income tax would be payable by someone earning \$40 000 in 2016?

A \$5 000

☒

B \$5 500

☐

C \$10 000

☐

D \$12 000

☐

[1 mark]

2 4

The national debt is the

A annual budget deficit plus the external trade deficit.

☐

B amount by which the budget deficit increases each year.

☐

C annual difference between government spending and tax receipts.

☐

D the cumulative stock of outstanding central government borrowing.

☒

[1 mark]



2 5

The table below shows how much of each of two products can be produced by two countries with the same amount of resources.

	Motorbikes		Cars
Brazil	10	or	5
United States	6	or	2

Which one of the following statements is correct?

- A** Brazil has a comparative advantage in the production of both motorbikes and cars. ☐
- B** Brazil has a comparative advantage in the production of cars. ☒
- C** The opportunity cost of producing motorbikes is higher in the United States than Brazil. ☐
- D** Trade will not take place because Brazil is better at producing both goods. ☐

[1 mark]

2 6

A country has a Human Development Index of 0.91. This country is most likely to have

- A** a high dependence on its primary sector. ☐
- B** a low level of life expectancy. ☐
- C** rapid population growth. ☐
- D** relatively low levels of illiteracy. ☒

[1 mark]

Turn over for the next question



2 7

The table below shows the Consumer Prices Index for a country over a number of years.

Year	End of year prices index
1	100
2	98
3	103
4	105
5	106
6	104
7	107

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

- A** The country suffered disinflation in Year 5
- B** The inflation rate was highest in Year 7
- C** The only time the country suffered deflation was in Year 2
- D** Real incomes fell between Year 1 and Year 7

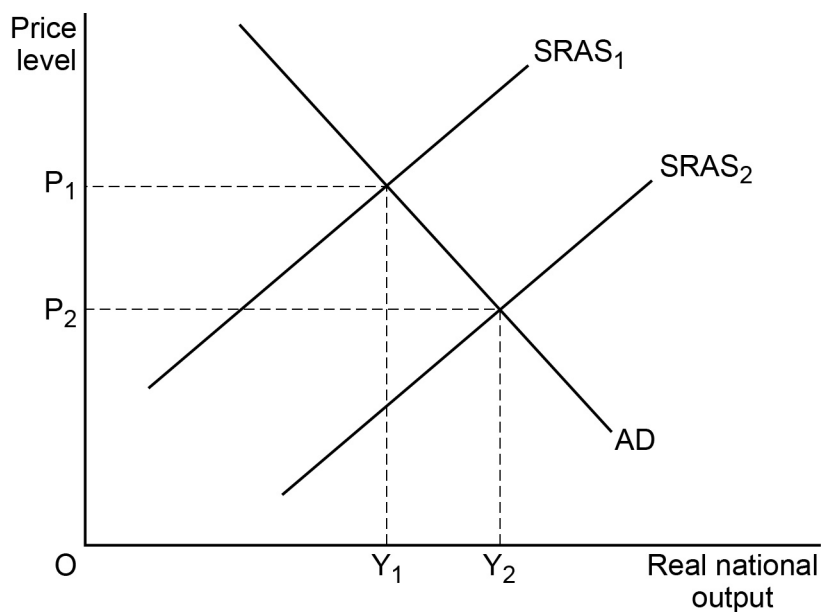
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[1 mark]



2 8

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



All other things being equal, which one of the following is most likely to cause the short-run aggregate supply curve to shift from $SRAS_1$ to $SRAS_2$?

- A A fall in the size of the labour force
- B An increase in imports
- C An increase in the value of the multiplier
- D Lower world commodity prices

☐
☐
☐
☒

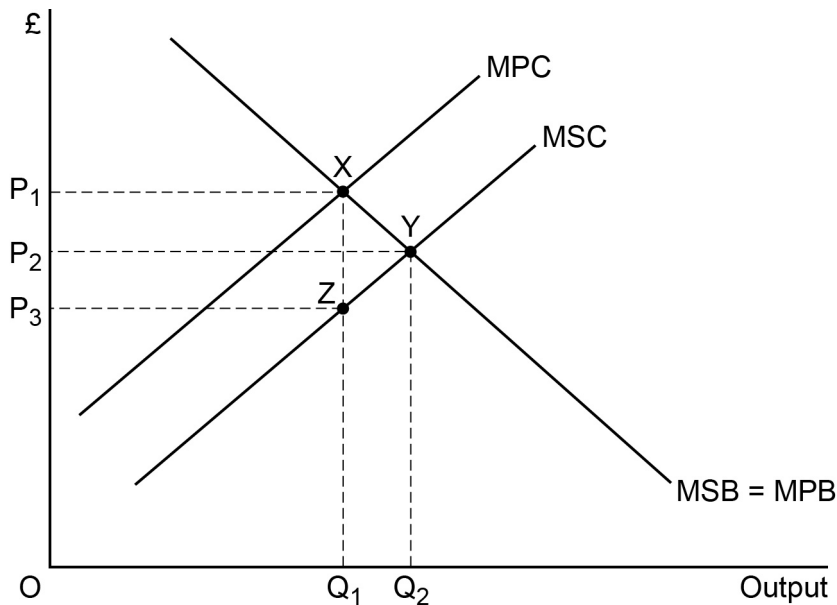
[1 mark]

Turn over for the next question



2 9

The diagram below shows the marginal private and social benefit (MPB and MSB) curves and the marginal private and social cost (MPC and MSC) curves in a market where there are positive externalities in production.



At the free market equilibrium, market failure occurs. Which one of the following is correct?

- A** As a result of this market failure, consumer surplus is reduced by ZXY ☐
- B** As a result of this market failure, there is a deadweight loss to society of P_3P_1XZ ☐
- C** P_1 minus P_3 is the subsidy per unit that is required to correct the market failure and achieve the social optimum ☒
- D** The diagonal distance XY shows the amount by which marginal private cost exceeds marginal social cost at OQ_2 ☐

[1 mark]

3 0

The price elasticity of demand for games consoles is -1.2. It can be concluded that a 10% reduction in their price would lead to a percentage change in demand of

- A** -8.3% ☐
- B** -12.0% ☐
- C** +8.3% ☐
- D** +12.0% ☒

[1 mark]

30



Turn over for Section B

**DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED**



Section B

Answer **all** questions in this section

Refer to the insert for Extracts A, B, C and D.

Total for this Investigation: 50 marks

The march of the makers – does manufacturing matter?

INVESTIGATION

Scenario

You are an economist, employed by a firm of economic consultants working for the government. You have been asked to produce a report on the importance of manufacturing for the UK economy. As part of this investigation, you are to provide answers to three questions.

Referring to the insert, study Extracts **A**, **B**, **C** and **D**, and then use these and your own economic knowledge to help you answer questions 31, 32 and 33.

3	1
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To what extent, if at all, do you consider that the UK manufacturing sector has been in decline since 2003? You must use the data in **Extract B** to support your assessment.

[10 marks]

Whether UK manufacturing has been in decline depends on whether we mean an absolute fall in output, a fall in employment, or a relative decline in its share of the economy. The data in Extract B allow each of these to be assessed.

Output: Figure 1 shows the index of manufacturing output was 97.8 in 2003 and 96.6 in 2015, a fall of only about 1.2% over twelve years.

The series fluctuated, falling sharply in the 2008 to 2009 recession and only partly recovering. Figure 4 shows manufacturing output fell by 2.8% in 2008 and 9.4% in 2009, compared with falls in real GDP of 0.5% and 4.2%, so manufacturing was hit much harder than the economy as a whole. In absolute terms output has stagnated rather than collapsed.

Relative decline: between 2010 and 2015 manufacturing grew by an



average of 1.1% a year while real GDP grew by 2.0% (and 0.9% against 3.0% in 1993 to 2007). As manufacturing grows more slowly than the economy, its share of GDP falls, to below 10% by 2015 (Extract A), so there is clear evidence of relative decline, ie deindustrialisation.

Employment: Figure 2 shows manufacturing employment fell from 3.65m in 2003 Q1 to 2.99m in 2009 Q1, a fall of about 18%, with

Extra space only a modest recovery by 2015 Q3. Since employment fell much more than output, labour productivity must have risen, so job losses partly reflect greater efficiency rather than a weaker sector.

Trade: Figure 3 shows exports of goods rose by £97.1bn (£188.5bn to £285.6bn, about 52%) but imports of goods rose by £171.2bn (£239.5bn to £410.7bn, about 71%), so the deficit in goods widened by £74.1bn to £125.1bn. This suggests UK manufacturers have lost competitiveness at home and abroad.

Limitations: the trade data are nominal, so inflation exaggerates the increases; goods include oil and other commodities, not just manufactures; 2003 and 2015 are at different points in the economic cycle; and precise data on manufacturing's share of GDP for 2003 to 2015 is not given. Averages also hide differences between industries: car production has revived while steel has declined (Extract C).

Conclusion: since 2003 UK manufacturing has been in clear relative decline and employment has fallen significantly, but output is almost unchanged in absolute terms. The sector has therefore stagnated rather than declined sharply, although the widening goods deficit suggests its competitive position has weakened.



3 2

Explain why, in advanced economies, economic growth is usually accompanied by a fall in employment in manufacturing but an increase in employment in the service sector.

[15 marks]

In advanced economies such as the UK, economic growth raises real incomes, but the share of output and employment in manufacturing falls while that of services rises. Extract A shows UK manufacturing employment fell from close to 9 million in 1966 to around 2.6 million in 2015, and manufacturing's share of GDP fell from about 30% in the early 1970s to below 10%. Several linked factors explain this. First, the income elasticity of demand (YED) for services is generally higher than for manufactured goods. YED measures the responsiveness of demand to a change in real income. As incomes rise, demand for many manufactures, such as clothing, furniture and basic household goods, rises less than proportionately (YED between 0 and 1) because consumers' needs for them become satisfied. In contrast, many services, such as tourism, restaurants, leisure, health care, education and financial services, are luxuries with YED greater than 1. Growth therefore shifts the pattern of demand towards services. Since the demand for labour is a derived demand, service firms demand more workers while demand for manufacturing labour grows slowly or falls. Second, productivity grows faster in manufacturing than in services. Manufacturing can use capital-intensive methods, automation and robotics, so output per worker rises rapidly. If productivity rises faster than the demand for manufactures, fewer workers are needed even when output is stable or rising. This is shown in Extract B: UK manufacturing output was almost unchanged between 2003 and 2015 while employment fell from 3.65m to 2.99m between 2003 and 2009.



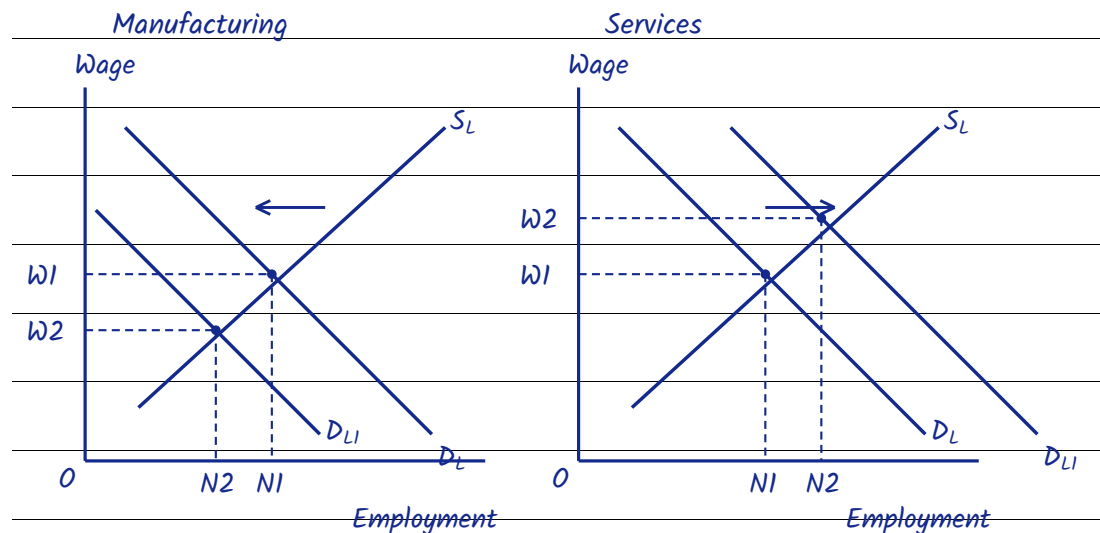
Output and employment are linked, but rising productivity breaks the one-to-one link. Many services, such as social care, hairdressing and teaching, are labour intensive and high quality often requires personal contact, so productivity grows slowly and employment must expand to meet rising demand.

Third, faster productivity growth lowers unit costs and therefore the
Extra space relative price of manufactured goods compared with services. Because demand for many manufactures is price inelastic, lower prices do not raise the quantity demanded enough to offset the labour-saving effect, while services become relatively more expensive, so a growing share of spending and employment goes to services.

Fourth, globalisation and foreign competition. Emerging economies such as China have much lower labour costs and a comparative advantage in labour-intensive, mass-produced manufactures. As trade barriers and transport costs fall, advanced economies import these goods and specialise in line with their comparative advantage in high value-added manufacturing and knowledge-intensive services such as finance, design and software. The manufacturing that remains is capital and skill intensive and employs relatively few people; Extract A notes that a small number of large firms generate most value added.

Other factors reinforce the shift. A strong exchange rate makes manufactured exports less price competitive and imports cheaper (Extract D refers to the strong pound). Manufacturers outsource activities such as cleaning, catering, IT and logistics to specialist service firms, so jobs are reclassified as services. Government policies, such as climate change levies that raise energy costs, increase costs for energy-intensive manufacturing.





As shown in the diagrams, labour-saving technology, cheaper imports and slow growth in demand for manufactures shift the demand for labour in manufacturing to the left from D_L to D_{LI} , so employment falls from $N1$ to $N2$. In services, rising demand for luxury services shifts the demand for labour to the right from D_L to D_{LI} , so employment rises from $N1$ to $N2$.

Therefore, the combination of a higher YED for services, faster productivity growth in manufacturing and international specialisation based on comparative advantage means growth is usually accompanied by falling manufacturing employment and rising service employment, even if manufacturing output continues to grow.



3 3

Taking into account **Extract D**, and the original evidence presented in **Extracts A, B and C**, would you recommend that the government should intervene to support the UK steel industry? Justify your recommendation.

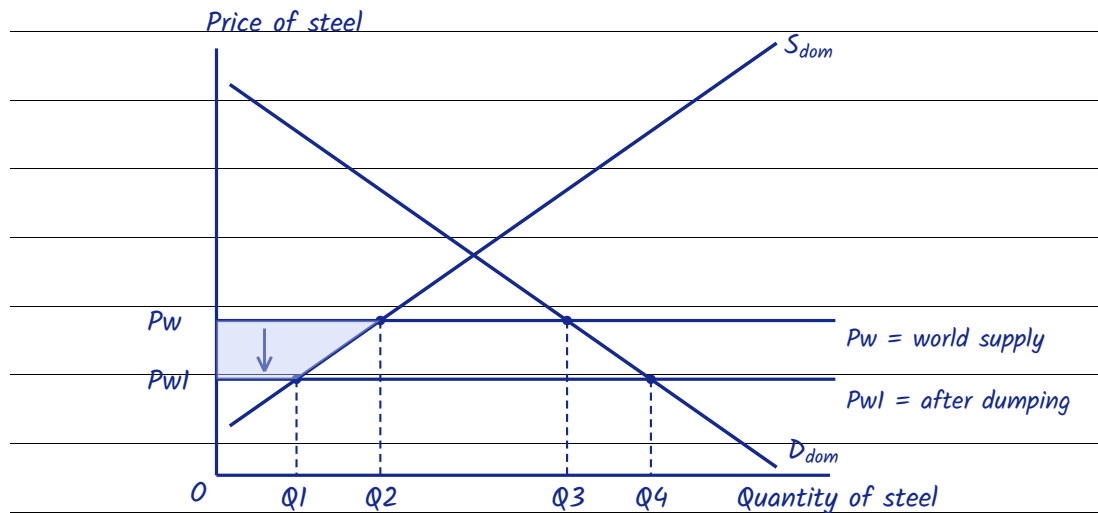
[25 marks]

Extract D shows the UK steel industry is in crisis. Tata Steel announced 1,050 job cuts, including 750 at Port Talbot, which is reportedly losing £1 million per day, and more than 5,000 of the industry's roughly 30,000 jobs were lost in a few months. Figure 5 shows a long-term downward trend in UK steel production between 1994 and 2014. Intervention could include subsidies or loans, compensation for energy costs, anti-dumping tariffs, buying British steel for public projects or temporary nationalisation. Whether the government should intervene depends on whether the problems reflect market failure and unfair competition or a genuine loss of comparative advantage.

Extract D identifies several causes: a collapse in the world price of steel as Chinese overcapacity has led to dumping, a strong pound, high electricity prices and the cost of climate change policies. Dumping is selling exports below cost. As shown in the diagram, if the world price falls from P_w to P_w1 , UK producers cut output from Q_2 to Q_1 and imports rise from Q_2Q_3 to Q_1Q_4 , so domestic output and employment fall, and the shaded area shows the loss of producer surplus for UK steelmakers. An anti-dumping duty that raised the price back to P_w would restore domestic output to Q_2 .

The case for intervention is strong in several respects. First, dumping is unfair competition rather than a sign that UK producers are inefficient; WTO rules allow anti-dumping duties, so protection would restore a level playing field rather than shield an inefficient industry.





Similarly, energy and climate costs are partly imposed by the UK government and are higher than in Germany or France, so compensating energy-intensive firms would remove a government-created disadvantage.

Second, closure would cause severe structural and regional unemployment. Steel jobs are concentrated in areas such as Port Talbot, Scunthorpe and Redcar where alternative jobs are scarce, and steelworkers have specific skills, so they are occupationally and geographically immobile. A negative multiplier effect would follow as lost incomes reduce spending on local businesses and suppliers, so the total job losses could be much larger than the direct losses. The government would also lose income tax and pay more benefits, so part of the cost of support is offset.

Third, steel has strategic importance and strong linkages with construction, defence, infrastructure and car manufacturing, which Extract C says is reviving. Losing domestic capacity would make the UK dependent on imports and vulnerable to supply disruptions. Once blast furnaces close they are very costly to restart, so closure may be



Extra space *irreversible. If low prices and the strong pound are temporary, and Extract D notes a weaker pound may help, short-term support could save capacity that is viable in the long run.*

However, there are strong arguments against intervention. If other countries can produce steel more cheaply, the UK may have lost its comparative advantage. Supporting steel would keep labour and capital in a low-productivity use and prevent resources being reallocated to sectors where the UK is competitive, reducing allocative efficiency.

Cheap imported steel also benefits consumers and steel-using industries, such as car and construction firms, whose costs fall; a tariff would raise their costs and cause a deadweight loss.

Subsidies have an opportunity cost: the money could be spent on health or education, or must be financed by higher taxes or borrowing, which, as Extract D notes, impose costs on efficient firms. With Port Talbot losing £1 million per day, support could be large and open-ended. There is also a risk of government failure: governments lack the information to pick winners, subsidies create moral hazard by reducing incentives to cut costs and innovate, and political pressure can make temporary support permanent.

Intervention is also constrained. As an EU member the UK cannot set its own tariffs and is bound by state aid rules, and WTO rules limit protection, while tariffs on Chinese steel risk retaliation against UK exporters. Lower energy costs for steel would also conflict with environmental targets, although if production simply moves abroad, global emissions may not fall.

On balance, I recommend limited, targeted and temporary intervention rather than an open-ended bailout. The strongest case is where the



market is distorted, so the government should press for anti-dumping duties on Chinese steel and reduce the government-imposed energy and climate costs that disadvantage UK producers. It could also buy British steel for infrastructure, and fund retraining and regional regeneration. These measures address causes that are not the fault of UK producers and avoid the moral hazard of direct subsidies. However, the decision depends on whether the industry can be competitive in the long run. If plants are still loss-making once dumping has been tackled and the pound has fallen, they should not be propped up indefinitely; help should go to workers and regions rather than to firms. The short-run social costs of closure justify some support, but long-run efficiency means any help must be conditional on firms investing to raise productivity.

50

END OF QUESTIONS

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