Diploma Programme
Programme du diplôme
Programa del Diploma

Markscheme

May 2019

Economics

Higher level

Paper 3

20 pages

Notes for examiners:

1. **Whenever relevant, carry over marks must be awarded. If a candidate makes an error in calculation, but then uses the incorrect figure appropriately and accurately in later question parts, then the candidate may be fully rewarded. This is the "own-figure rule" and you should put OFR on the script where you are rewarding this.**

2. **Alternative approaches may be taken in responses to the [4] questions that use A02 command terms. If this is the case and the alternative approaches are valid, then full credit should be given.**

1. (a) Identify the slope of the supply curve. **[1]**

Slope = 4.5 ***OR*** + 4.5 (or 1/4.5 or 2/9)

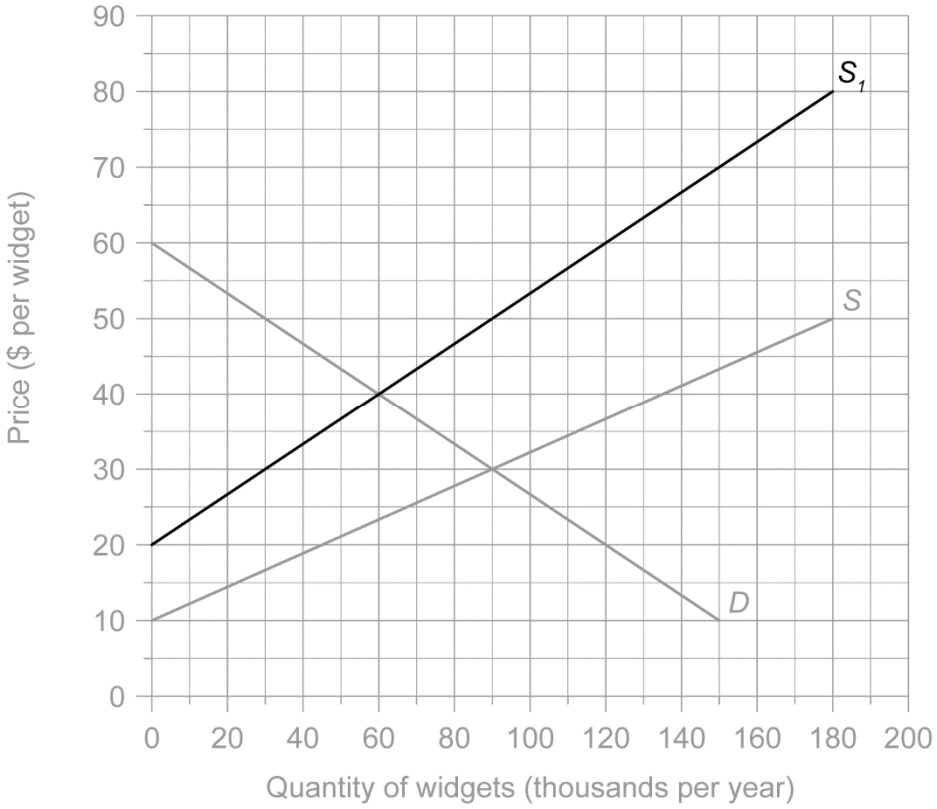
An answer of 4.5 or + 4.5 (or 1/4.5 or 2/9) *without any working is sufficient for **[1]**.*

(b) Outline the reason why the quantity supplied increases as the price rises. **[2]**

Level		Marks
0	*The work does not meet a standard described by the descriptors below.*	0
1	*Vague outline.*	1
	The idea that it becomes more profitable to supply / because of the law of supply / to earn more revenue / because the coefficient is positive / because producers are more willing to supply.	
2	*Accurate outline.*	2
	An outline that as it becomes more profitable to supply, including **one** of the following: • At a higher price, the profit margin is greater, so there is an incentive to produce and offer more units. ***OR*** • As price increases, profit will be maximized at a higher level of output given an upward-sloping MC curve. ***OR*** • Since marginal costs rise, a firm will be willing to offer more units per period only at a higher price.	

***NB** Responses which outline only that producers are "more able to afford" to produce more should not be rewarded.*

(c) Draw and label the new supply curve on **Figure 1**. **[1]**



*Award **[1]** for an accurate, labelled supply curve.*

(d) Using your answer to part (c), outline the reason why an increase in costs of production has resulted in a new supply function. **[2]**

Level		Marks
0	*The work does not meet a standard described by the descriptors below.*	0
1	*Vague outline.*	1
	• an increase in costs of production will reduce profitability. ***OR*** • an increase in costs of production may require an increase in price.	
2	*Accurate outline.*	2
	For outlining that: • an increase in costs of production will reduce profitability, causing producers to be less willing to supply. ***OR*** • an increase in costs of production will increase the price at which producers will be willing to supply the same quantity.	

NB *Responses which make reference to producers being "less able to afford" resources should not be rewarded.*

Reference to the need to cut costs may be rewarded at level 1, but if the candidate refers to producers being unable to afford to supply, this should not be rewarded.

An accurate numerical example, referring explicitly to data in the graph, should be rewarded.

(e) Calculate the change in producer surplus resulting from the increase in costs of production. **[2]**

$(0.5 \times 20 \times 60\,000) - (0.5 \times 20 \times 90\,000)$

Any valid working is sufficient for ***[1]***.

$= -$ \$300 000 (or a decrease of \$300 000)

An answer of – \$300 000 or – 300 000 without any working is sufficient for ***[1]***.

(f) Define the term *price elasticity of supply*. **[2]**

Level		Marks
0	*The work does not meet a standard described by the descriptors below.*	0
1	*Vague definition.*	1
	The idea that price elasticity of supply relates to changes in quantity <u>following</u> a change in price. ***OR*** The proportional/percentage change in quantity supplied in response to (divided by) a (proportional/percentage) change in price. ***OR*** Percentage change in quantity supplied/percentage change in price.	
2	*Accurate definition.*	2
	An explanation that price elasticity of supply is the responsiveness of supply (or, of quantity supplied) to a change in price.	

The time taken to produce goods is an important determinant of the price elasticity of supply.

(g) Apart from time, explain **two** factors which influence the price elasticity of supply. **[4]**

Level		Marks
0	*The work does not meet a standard described by the descriptors below.*	0
1	*The written response is limited.*	1 - 2
	Any **one** factor expressed in a vague manner **[1]**. Any **two** factors expressed in a vague manner ***OR* one** factor explained clearly **[2]**.	
2	*The written response is accurate.*	3 - 4
	Any **one** factor explained clearly ***AND* one** factor expressed in a vague manner **[3]**. Any **two** factors explained clearly **[4]**.	

*Factors **may** include:*

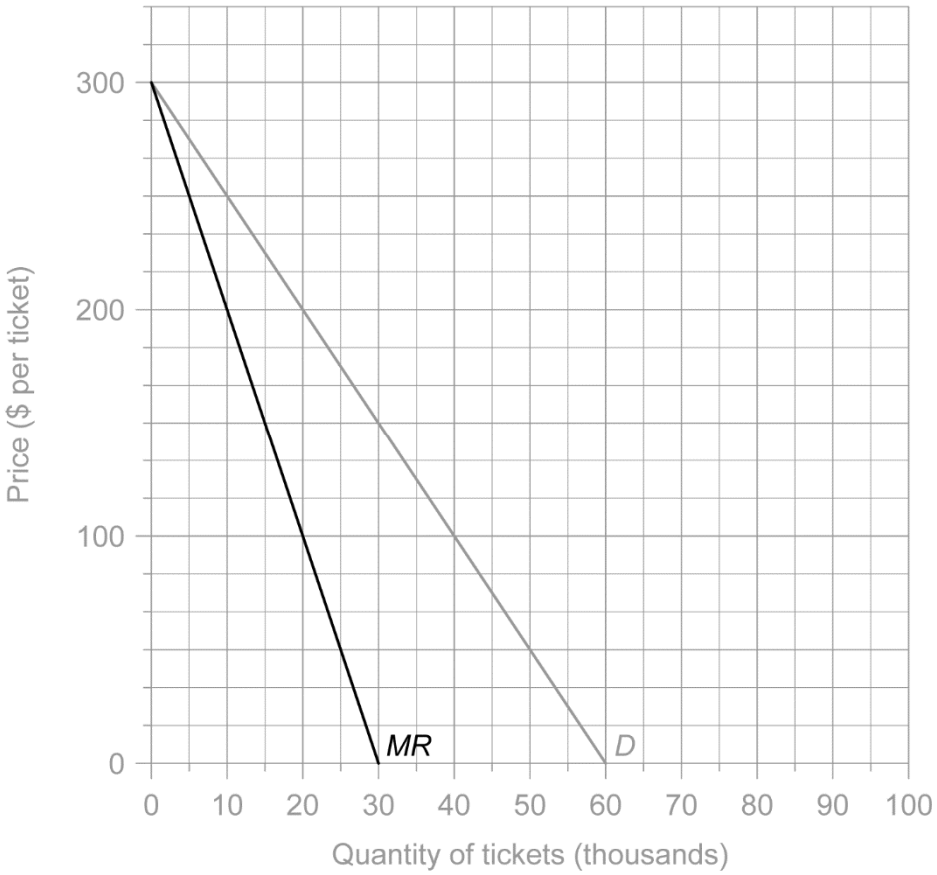
- whether the firm has excess (or unused, or spare) capacity available: if it does, then increasing output will be easier so supply will be more price elastic
- possibility of storage: the greater the ability to store stocks, the more price elastic supply will be as firms can draw from stocks to increase the quantity supplied
- mobility of factors of production: the easier it is for a producer to switch resources from one use to another, the easier it will be to increase the quantity supplied in response to an increase in the price of the product, so supply will be more elastic (the ease with which technology can be implemented/applied could be an example of this)
- the rate at which costs rise as output increases – the faster/higher the rate, the lower the PES *(**NB** "costs of production" should not be rewarded)*
- the nature of the product *eg* for agricultural products, the time lag between planting and harvest is relatively long, so supply would be relatively price inelastic in the short term.

Any other reasonable response should be rewarded.

(h) With reference to Figure 2, explain how the incidence of taxation on consumers and/or producers will be influenced by the price elasticity of supply. **[4]**

Level		Marks
0	*The work does not meet a standard described by the descriptors below.*	0
1	*The written response is limited.*	1 – 2
	For stating that supply is perfectly inelastic **[1]** and that producers will bear the full burden (incidence) of the tax **[1]**. ***OR*** $\frac{\%\text{ of tax incidence on Consumers}}{\%\text{ of tax incidence on producers}} = \frac{\text{PES}}{\text{PED}}$ **[1]** So, given PED, the more price inelastic supply is**,** the smaller the incidence on consumers and the greater on producers **[1]**.	
2	*The written response is accurate.*	3 – 4
	For stating that supply is perfectly inelastic **[1]** and that producers will bear the full burden (incidence) of the tax **[1]** ***AND*** for an explanation that equilibrium price **[1]** and quantity will not change (so that consumers are not affected but producers bear the full burden/incidence) **[1]**. ***OR*** $\frac{\%\text{ of tax incidence on Consumers}}{\%\text{ of tax incidence on producers}} = \frac{\text{PES}}{\text{PED}}$ **[1]**. So, given PED, the more price inelastic supply is, the smaller the incidence on consumers and the greater on producers **[1]**. If PES is zero as it is here **[1]**, then 100% of tax incidence (the full $10.00) will be paid by producers **[1]** (and 0% by consumers).	

(i) Draw and label the marginal revenue (MR) curve for the concert on **Figure 3**. **[1]**



*Award **[1]** for an accurate, labelled marginal revenue (MR) curve.*

(j) Calculate the maximum revenue that could be earned from selling tickets for the concert. **[2]**

150 × 30 000

*Any valid working is sufficient for **[1]**.*

= $4 500 000

*An answer of $4 500 000, 4 500 000, $4.5 million or 4.5 million without any working is sufficient for **[1]**.*

OFR applies from part (i), depending on where the MR curve cuts the x axis.

(k) (i) Calculate the average fixed cost per ticket if all tickets are sold. **[1]**

$3 million / 40 000 = $75

*An answer of $75 or 75 is sufficient for **[1]**.*

(ii) Assuming the event organizers aim to maximize profit, calculate the profit that will be made from the concert. **[3]**

*Award **[1]** if the candidate identifies that profit will be maximized where:*
MC = MR
OR
MC = 0
OR
TR – TC is maximized

ie at 30 000 tickets and a price of $150.

TR = 30 000 × $150 = $4.5 million
TC = $3 million

Profit = 4.5 million – 3 million

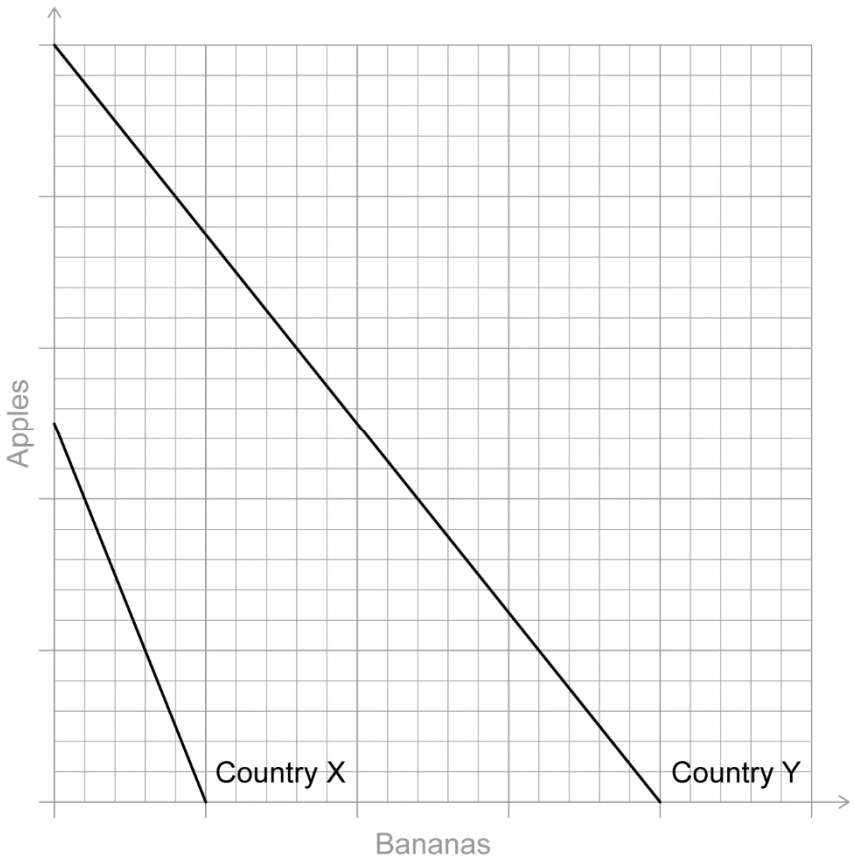
*Any valid working is sufficient for **[1]**.*

= $1.5 million

*An answer of $1.5 million or 1.5 million or 1 500 000 without any working is sufficient for **[1]**.*

OFR applies, provided either TR or TC is calculated correctly.

2. (a) Sketch and label a diagram to illustrate comparative advantage between Country X and Country Y on **Figure 4**. **[2]**



*Award **[1]** for a sketch showing the PPC of Country Y above/further out than for Country X.*

*Award **[1]** for a sketch showing the PPC of Country X with a steeper gradient than for Country Y.*

***NB** There is no set position for each of the curves. However, no marks may be awarded unless both curves are downward-sloping.*

(b) Outline the reason why Country X should specialize in the production of apples and Country Y should specialize in the production of bananas. **[2]**

Level		Marks
0	*The work does not meet a standard described by the descriptors below.*	0
1	*Vague outline.*	1
	The idea that Country X should specialize (in apples) because the opportunity cost is lower ***OR*** because specialization should increase output ***OR*** that this will increase its consumption possibilities.	
2	*Accurate outline.*	2
	The idea that Country X should specialize (in apples) because the opportunity cost is lower ***AND*** because specialization should increase output ***AND/OR*** that this will increase its consumption possibilities/increase (global) efficiency/may result in lower prices.	

OFR applies.

(c) Outline **one** reason why it might not be in a country's best interests to specialize according to the principle of comparative advantage. **[2]**

Level		Marks
0	*The work does not meet a standard described by the descriptors below.*	0
1	*One valid reason, with limited detail.*	1
2	*One valid reason, with clear summary.*	2

Reasons **may** include:

- unemployment in industries where trading partners enjoy comparative advantage because workers are unable to move to those industries where there is a comparative advantage
- over-specialization resulting in vulnerability to changes in market conditions or as a barrier to economic development
- risk will be reduced by the avoidance of over-reliance on trading partners for essential products or resources which might compromise national security or diminish negotiating power
- specialization may make it difficult for the economy to diversify, thus maintaining the risk of vulnerability to market conditions
- safety and environmental standards may be compromised by low-quality imports
- specialization may not result in beneficial trade if export markets are protected by barriers to trade
- if demand conditions for the export good suffer a long-term decrease then the resulting deterioration of the country's terms of trade may harm the economy
- over-specialization may result in an economy continuing to produce a good with low income elasticity of demand, causing economic growth to be slow relative to other economies.

Any other reasonable response should be rewarded.

(d) Calculate the change in expenditure on imported oranges as a result of the increase in demand. **[2]**

$100\,000 \times 2 - 40\,000 \times 2$

*Any valid working is sufficient for **[1]**.*

***NB** Workings which measure market demand, rather than the demand for imports (so the calculation is 160 000 × 2 – 100 000 × 2 **are not valid**.*

$= \$120\,000$

*An answer of $120 000 or 120 000 without any working or with invalid working as exemplified above is sufficient for **[1]**.*

(e) (i) Calculate the change in consumer surplus in Country Z as a result of the increase in demand for oranges. **[2]**

$(0.5 \times 160\,000 \times 1.6) - (0.5 \times 100\,000 \times 1.0)$

*Any valid working is sufficient for **[1]** (eg correct calculation of either initial or final consumer surplus).*

$= \$78\,000$

*An answer of $78 000 or 78 000 without any working is sufficient for **[1]**.*

(ii) Calculate the change in social (community) surplus as a result of the increase in demand for oranges. **[2]**

Change in producer surplus = 0

Change in community surplus = 78 000 + 0

*Any valid working is sufficient for **[1]**.*

$= \$78\,000$

*An answer of $78 000 or 78 000 without any working is sufficient for **[1]**.*

OFR applies.

(f) State **one** administrative barrier that Country Z could use in order to restrict imports. **[1]**

*Administrative barriers **may** include:*
- requirements for packaging/labelling
- health/safety/inspection procedures
- changes in permitted specifications for a product
- increased bureaucracy.

*Award **[1]** for stating **one** administrative barrier.*

Any other reasonable response should be rewarded.

(g) Explain **two** possible economic consequences for the eurozone if the euro appreciates. **[4]**

Level		Marks
0	*The work does not meet a standard described by the descriptors below.*	0
1	*The written response is limited.*	1–2
	For stating **one** consequence **[1]**. For explaining **one** consequence ***OR*** for stating **two** consequences **[2]**.	
2	*The written response is accurate.*	3–4
	For stating **one** consequence ***AND*** explaining **one** consequence **[3]**. For explaining **two** consequences **[4]**.	

*Consequences **may** include:*

- a stronger currency may reduce the export competitiveness of the eurozone, thus worsening the current account balance/increasing imports and reducing exports
- a currency appreciation will reduce the domestic price of imports so cost of living will decrease and cost of imported raw materials will decrease, lowering production costs of domestic firms and reducing inflationary pressure
- a stronger currency may reduce export competitiveness, causing aggregate demand to decrease, thus reducing inflationary pressure
- a stronger currency may reduce the export competitiveness of the eurozone, causing aggregate demand to decrease, thus causing slower growth/higher unemployment
- the value of any foreign debt may be reduced as a smaller amount of euros will be needed to repay/service the debt (if denominated in foreign currency)
- foreign direct investment inflows may decrease as it becomes more expensive to purchase assets in the eurozone (also reward greater outflows of FDI or changes in flows of financial capital).

Any other reasonable response should be rewarded.

(h) Calculate the quantity of EU€ she will receive for her US$300 000. **[1]**

$$\frac{300\,000}{1.2} = 250\,000$$

*An answer of 250 000 without any working is sufficient for **[1]**.*

(i) Calculate, in US$, the loss made by Tanya as a result of these transactions. **[3]**

The new exchange rate = €1 = US$1.20 × 0.9 = US$1.08

*Any valid working is sufficient for **[1]**.*

€250 000 can be exchanged for 250 000 × 1.08 = US$270 000

*Any valid working is sufficient for **[1]** (eg if an incorrectly calculated exchange rate is correctly applied to exchanging €250 000.*

Loss = 270 000 − 300 000 = US$30 000

*An answer of US$30 000 or 30 000 without any working is sufficient for **[1]**.*

OFR applies.

***NB** A simple but accurate calculation, such as "10% × 300 000 = $30 000, may be fully rewarded.*

(j) Explain **two** reasons why a government might prefer a floating exchange rate system for its currency. **[4]**

Level		Marks
0	*The work does not meet a standard described by the descriptors below.*	0
1	*The written response is limited.*	1–2
	For stating **one** reason **[1]**. For explaining **one** reason ***OR*** for stating **two** reasons **[2]**.	
2	*The written response is accurate.*	3–4
	For stating **one** reason ***AND*** explaining **one** reason **[3]**. For explaining **two** reasons **[4]**.	

*Reasons **may** include:*

- a floating exchange rate system allows for independent monetary policy. Interest rates can be set in order to influence AD without fear of disrupting the (fixed) exchange rate
- the economy can use exchange rate policy to affect macroeconomic variables, such as the growth rate; inflation)
- if an economy has a current account deficit/surplus, the exchange rate will act as a self-regulating mechanism to restore the balance
- the central bank does not need to maintain foreign reserves: (involving an opportunity cost) to be able to intervene in the foreign exchange market.

Any other reasonable response should be rewarded.

3. (a) Calculate the unemployment rate in Fairland using **Table 1**. **[2]**

$$\text{Unemployment rate} = \frac{\text{Unemployed}}{\text{Labour force}} \times 100 = \frac{\text{Labour force-Employed}}{\text{Labour force}} \times 100 =$$

$$\frac{0.62 \times 231 - 105}{0.62 \times 231} \times 100 = \frac{143 - 105}{143} \times 100$$

*Any valid working (such as the correct calculation of the labour force) is sufficient for **[1]**.*

= 26.57 % or 26.69 %

(this depends on when rounding has taken place)

*An answer of 26.57 or 26.69 without working is sufficient for **[1]**.*

(b) Outline **two** difficulties in measuring unemployment. **[4]**

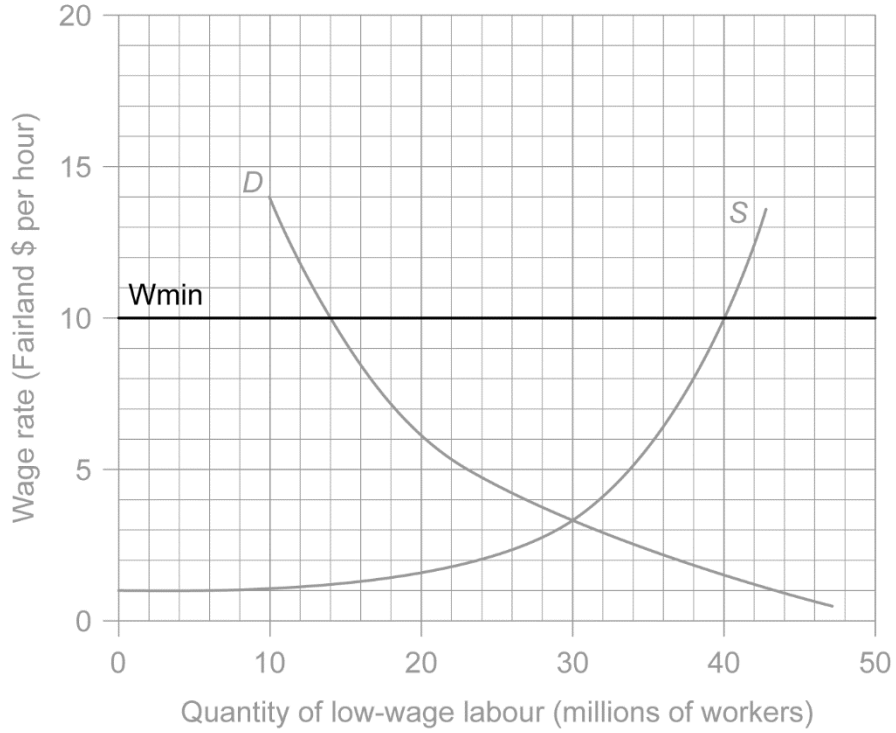
Level		Marks
0	*The work does not meet a standard described by the descriptors below.*	0
1	*The written response is limited.*	1–2
	One difficulty stated or outlined in a vague manner **[1]**. **Two** difficulties stated or outlined in a vague manner ***OR*** **one** difficulty outlined clearly **[2]**.	
2	*The written response is accurate.*	3–4
	One difficulty stated or outlined in a vague manner ***AND*** **one** difficulty outlined clearly **[3]**. **Two** difficulties outlined clearly **[4]**.	

*Possible difficulties **may** include:*

- some of the unemployment is hidden, because some people who are able and willing to work have become discouraged and have given up looking for a job
- some of the employed are underemployed and, while officially working, do not fully utilize their time (involuntary part-timer workers) or skills/experience
- there may be false claims by those who seek to obtain unemployment benefits, or those in the informal labour market seeking to avoid income tax) thus distorting the official statistics
- the unemployment figure is an average and ignores regional, ethnic, age and gender disparities.

Any other reasonable response should be rewarded.

(c) Draw and label a curve that illustrates Fairland's minimum wage on **Figure 6.** **[1]**



*Award **[1]** for an accurate, labelled minimum wage line.*

(d) Calculate the resulting unemployment among the low-wage workers. **[2]**

Unemployment = number of workers willing to supply their labour − number of workers demanded by firms = 40 million − 14 million

*Any valid working is sufficient for **[1]**.*

= 26 million

*An answer of 26 million or 26 without working is sufficient for **[1]**.*

(e) (i) Define the term *marginal rate of tax.* **[2]**

Level		Marks
0	*The work does not meet a standard described by the descriptors below.*	0
1	*Vague definition.*	1
	For the idea that it is tax paid when income increases.	
2	*Accurate definition.*	2
	For an explanation that it is the proportion of any additional income which must be paid as tax. ***OR*** For an explanation that it is the proportion of the last dollar (or any currency) earned which must be paid as tax. ***OR*** the *change* in tax (ΔT) as a result of a *change* in income (ΔY) ➔ MTR = $\frac{\Delta T}{\Delta Y}$	

(ii) Calculate how much additional income tax Fred will need to pay. **[2]**

$3000 \times 10\,\% + 1000 \times 20\,\%$

*Any valid working is sufficient for **[1]**.*

$= \$500$

*An answer of $500 or 500 without any working is sufficient for **[1]**.*

OR

Initial tax paid $= 10\,000 \times 5\,\% + 5000 \times 10\,\% = 1000$

New tax paid $= 10\,000 \times 5\,\% + 8000 \times 10\,\% + 1000 \times 20\,\% = 1500$

*Any valid working is sufficient for **[1]**.*

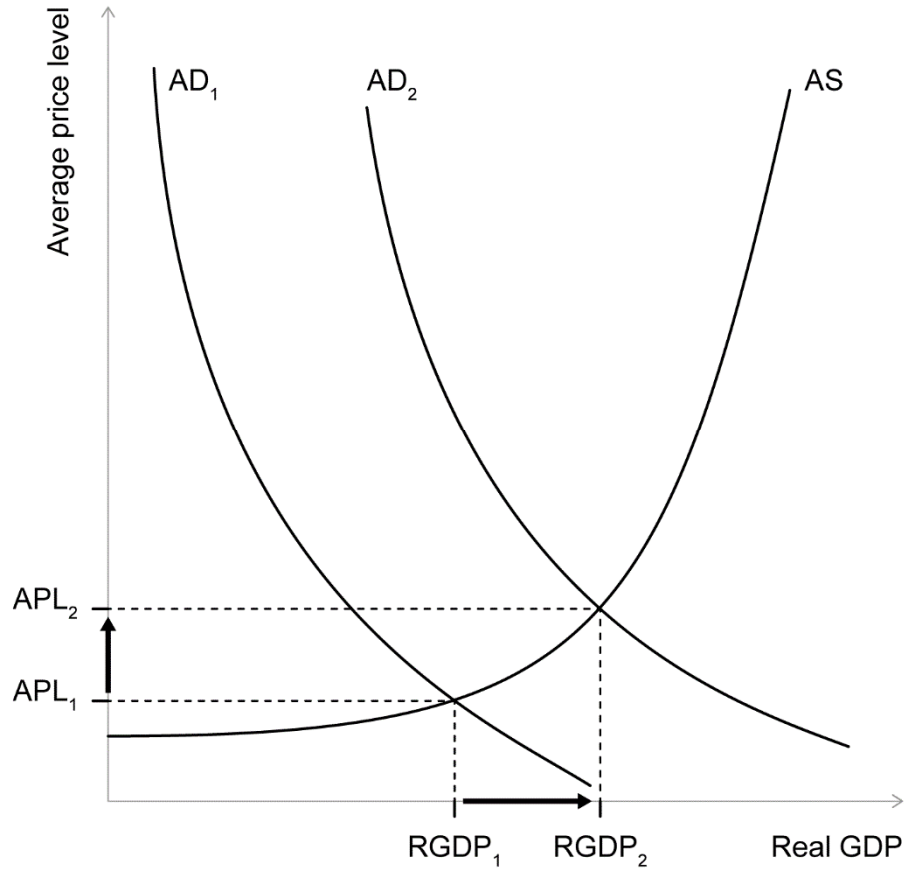
Change in tax paid $= 1500 - 1000$

$= \$500$

*An answer of $500 or 500 without any working is sufficient for **[1]**.*

***NB** Responses which apply the bands such that, for example, 10% is charged on $7 999 rather than $8 000 may be fully rewarded.*

(f) Using an AD/AS diagram to support your answer, explain the mechanism through which monetary policy can help an economy reduce the level of unemployment. **[4]**



Level		Marks
0	*The work does not meet a standard described by the descriptors below.*	0
1	*The written response is limited.*	1–2
	An AD/AS diagram showing a shift of the AD curve to the right ***OR*** an explanation that lower interest rates will lead to increased investment and/or consumer spending and/or lower saving, causing AD to shift to the right therefore causing an increase in output and a reduction in unemployment.	
2	*The written response is accurate.*	3–4
	An AD/AS diagram showing a shift of the AD curve to the right ***AND*** an explanation that lower interest rates will lead to increased investment and/or consumer spending and/or lower saving, causing AD to shift to the right therefore causing an increase in output and a reduction in unemployment.	

Any form of aggregate supply curve (SRAS, LRAS or Keynesian AS) is acceptable.

*Candidates who incorrectly label diagrams can receive a maximum of **[3]**.*

For AD/AS, the vertical axis may be price level or average price level. The horizontal axis may be output, real output, national output, real national output, national income, or GDP. A title is not necessary.

Any other reasonable response should be rewarded. For example, a diagram showing the labour market, with axes labelled "wage rate" and "employment" or "quantity of labour", with accurate explanation may be fully rewarded.

(g) State **two** interventionist supply-side policies that are likely to increase the demand for low-wage labour in Fairland. **[2]**

*Award **[1]** for each appropriate policy stated.*

*Policies **may** include:*
- investment in infrastructure
- tax cuts or tax allowances in industries that hire low-wage labour
- subsidies for firms that hire low-wage labour
- Investment in education and training/human capital
- Investment in health.

Examiners should be aware that some candidates may take alternative approaches, which, if appropriate, should be fully rewarded.

(h) State **two** market-based supply-side policies that are likely to increase the supply of labour in Fairland. **[2]**

Level		Marks
0	*The work does not meet a standard described by the descriptors below.*	0
1	*The written response is limited.*	1
	For stating **one** of the following: • personal income tax cuts • reducing unemployment benefits.	
2	*The written response is accurate.*	2
	For stating **two** of the following: • personal income tax cuts • reducing unemployment benefits.	

Examiners should be aware that some candidates may take alternative approaches, which, if appropriate, should be fully rewarded eg cuts in employee social security contributions.

(i) Using this information, calculate the value of the Keynesian multiplier. **[2]**

$$\text{Multiplier} = \frac{1}{MPS + MPT + MPM} = \frac{1}{0.1 + 0.2 + 0.1}$$

*Any valid working is sufficient for **[1]**.*

$= 2.5$

*An answer of 2.5 without any working is sufficient for **[1]**.*

(j) Using your answer to part (i), calculate the increase in government spending necessary to increase nominal GDP by $100 billion. **[2]**

Change in government spending $= \frac{100}{2.5}$

*Any valid working is sufficient for **[1]**.*

= $40 billion

*An answer of 40 billion or 40 or $40 billion without any working is sufficient for **[1]**.*

OFR applies.