

# Markscheme

**May 2015**

**Economics**

**Higher level**

**Paper 3**

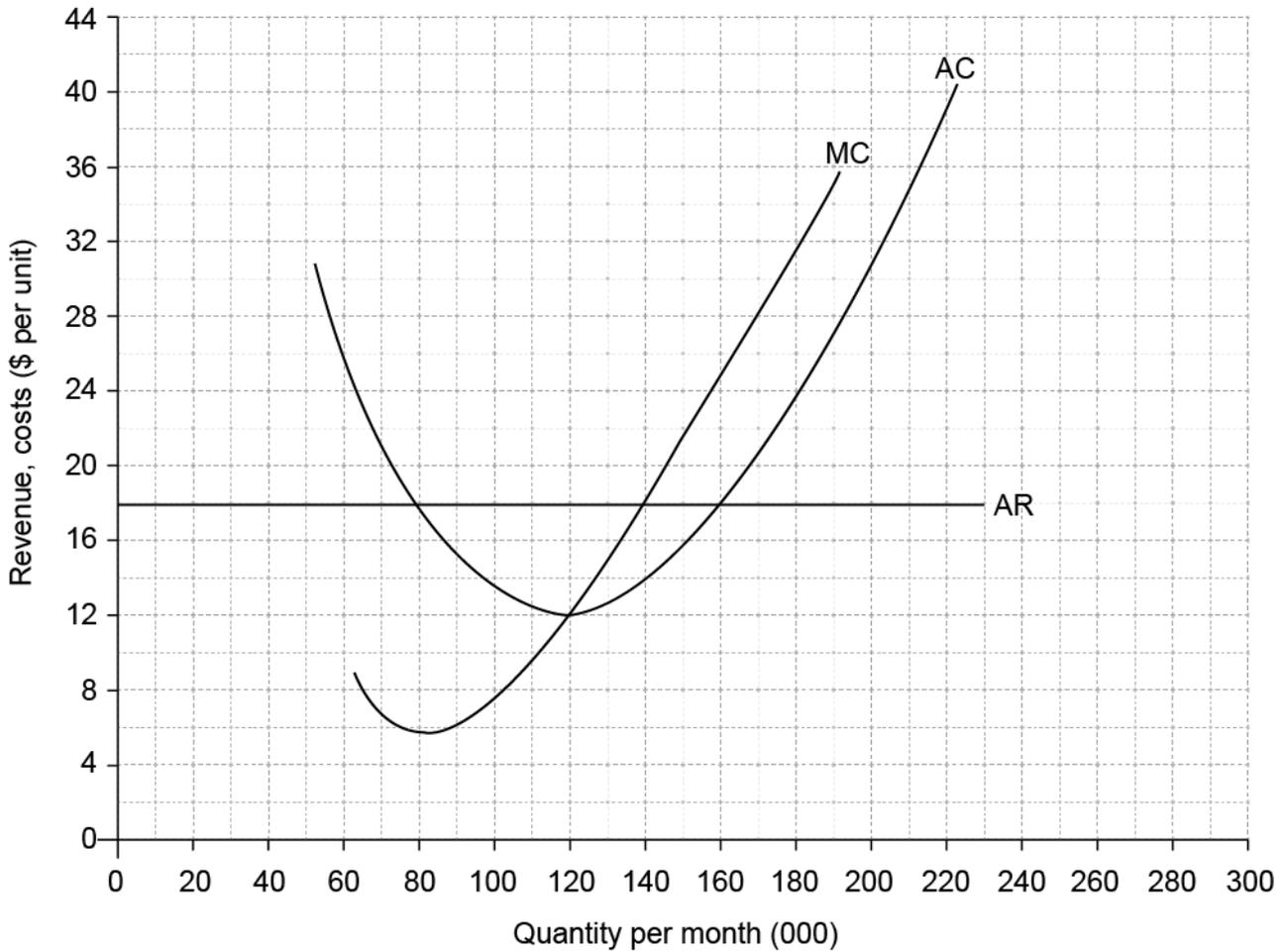
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Notes for examiners:

- 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. To do this you will need to use the on-page comment annotation tool (T).
- 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) (i) On the diagram, draw and label the average revenue curve for Firm A. [2]



For an accurate average revenue curve. [1]  
For an accurate, labelled average revenue curve. [1]

- (ii) Calculate Firm A's total revenue if it produces 180 000 units per month. **[2]**
- Total revenue =  $180\,000 \times 18$  **[1]**  
*Any valid working is sufficient for [1].*
- = \$3 240 000 **[1]**  
*An answer of \$3 240 000 or 3 240 000 without any valid working is sufficient for [1] only.*
- Since both AR and quantity are given, OFR does not apply.*
- (iii) Identify Firm A's short-run profit maximizing level of output. **[1]**
- Profit-maximizing level of output = 140 000 (*the term "units" is not necessary*)  
**OR**  
 120 000 units (*the term "units" is not necessary*) to allow for maximum profit if measured using the diagram provided **[1]**  
*OFR applies if AR (=MR) curve has been drawn in the wrong position.*
- (iv) Calculate Firm A's short-run abnormal profit/loss at the level of output identified in part (iii). **[2]**
- At output 140 000  
 Total revenue =  $AR \times Q = 18 \times 140\,000 = 2\,520\,000$   
 Total cost =  $AC \times Q = 14 \times 140\,000 = 1\,960\,000$  **[1]**
- Any valid working is sufficient for [1].*
- Profit =  $2\,520\,000 - 1\,960\,000 = \$560\,000$  **[1]**
- OFR from part (iii) applies; no OFR applies within part (iv).*
- (b) With reference to the diagram, identify the long-run equilibrium price and level of output for Firm A. **[2]**
- $P = \$12$  **[1]**  
 $Q = 120\,000$  (*the term "units" is not necessary*) **[1]**
- (c) Explain, using the diagram, how Firm A will move from short-run equilibrium to long-run equilibrium. **[4]**
- | Level   | Marks      |
|---|------------|
| 0 <i>The work does not reach a standard described by the descriptors below.</i>   | <b>0</b>   |
| 1 <i>The written response is limited.</i><br>For an explanation that the existence of abnormal profits (of \$560 000) in the short run will attract new firms into the industry.  | <b>1–2</b> |
| 2 <i>The written response is accurate.</i><br>For an explanation that the existence of abnormal profits (of \$560 000) in the short run will attract new firms into the industry <b>and</b> that this will increase market supply and consequently cause price to decrease until abnormal profits are competed away (at a price of \$12). | <b>3–4</b> |
- A response which makes no direct reference to the diagram may be awarded a maximum of [3].*

(d)	Define the term <i>satisficing</i> .	<b>[2]</b>
Level		Marks
0	<i>The work does not reach a standard described by the descriptors below.</i>	<b>0</b>
1	<i>Vague definition.</i> The idea that a firm tries to make enough profit.	<b>1</b>
2	<i>Accurate definition.</i> The idea that a firm tries to make enough profit... <ul style="list-style-type: none"><li>• in order to satisfy different stakeholders</li></ul> <b>OR</b> <ul style="list-style-type: none"><li>• in order to pursue other objectives</li></ul> <b>OR</b> <ul style="list-style-type: none"><li>• because decision makers do not have the necessary information in order to maximize profits.</li></ul>	<b>2</b>
(e)	Define the term <i>non-collusive</i> .	<b>[2]</b>
Level		Marks
0	<i>The work does not reach a standard described by the descriptors below.</i>	<b>0</b>
1	<i>Vague definition.</i> The idea that firms act independently.	<b>1</b>
2	<i>Accurate definition.</i> The idea that firms do not come together to set agreements on price and/or output.	<b>2</b>

(f) Calculate the price elasticity of demand if

(i) price increases to \$12; [2]

$$PED = \frac{\% \Delta Q}{\% \Delta P} = \frac{59.09}{20} \quad [1]$$

Any valid working is sufficient for [1].

$$= 2.95 \text{ (or } -2.95) \quad [1]$$

An answer of 2.95 (or -2.95) without any valid working is sufficient for [1] only.

Correct use of negative sign for  $\Delta Q$  and PED may be present but is not necessary.

**N.B.** Candidates who use an accurate midpoint formula may be fully rewarded.

$$\frac{13}{15.5} \times \frac{11}{2}$$

$$= 4.61 \text{ or } -4.61$$

An answer of 4.61 (or -4.61) without any valid working is sufficient for [1] only.

(ii) price decreases to \$4. [2]

$$PED = \frac{\% \Delta Q}{\% \Delta P} = \frac{27.27}{60} \quad [1]$$

Any valid working is sufficient for [1].

$$= 0.45 \text{ or } -0.45 \quad [1]$$

An answer of 0.45 (or -0.45) without any valid working is sufficient for [1] only.

Correct use of negative sign for  $\Delta P$  and PED may be present but is not necessary.

**N.B.** Candidates who use an accurate midpoint formula may be fully rewarded.

$$\frac{6}{25} \times \frac{7}{6}$$

$$= 0.28 \text{ or } -0.28$$

An answer of 0.28 (or -0.28) without any valid working is sufficient for [1] only.

- (g) Using the diagram and your answers to part (f), explain why price rigidities exist in non-collusive oligopolistic markets. **[4]**

Level	Marks
0 <i>The work does not reach a standard described by the descriptors below.</i>	<b>0</b>
1 <i>The written response is limited.</i> For an explanation that the firms may be unwilling to increase or reduce price because they will be worse off in either case.	<b>1–2</b>
2 <i>The written response is accurate.</i> For an explanation that if they increase price they may expect rivals not to follow so that demand is elastic and revenue would decrease. On the other hand, if they cut price they may expect rivals to follow so that demand is relatively inelastic and the firm will be again worse off. Therefore it is not in the firm’s interest to change price.	<b>3–4</b>

**OR**

An explanation that, for the profit-maximizing oligopolist who predicts that rival(s) will not follow a price increase but will follow a price cut so there is a range of cost conditions (possible positions of the MC curve) which would intersect the MR curve within the resulting discontinuity at the current level of output. It is therefore relatively likely that the oligopolist will choose to leave price/output unchanged.

2. (a) (i) Identify **two** possible reasons for a decrease in consumer expenditure. **[2]**

Possible responses include:

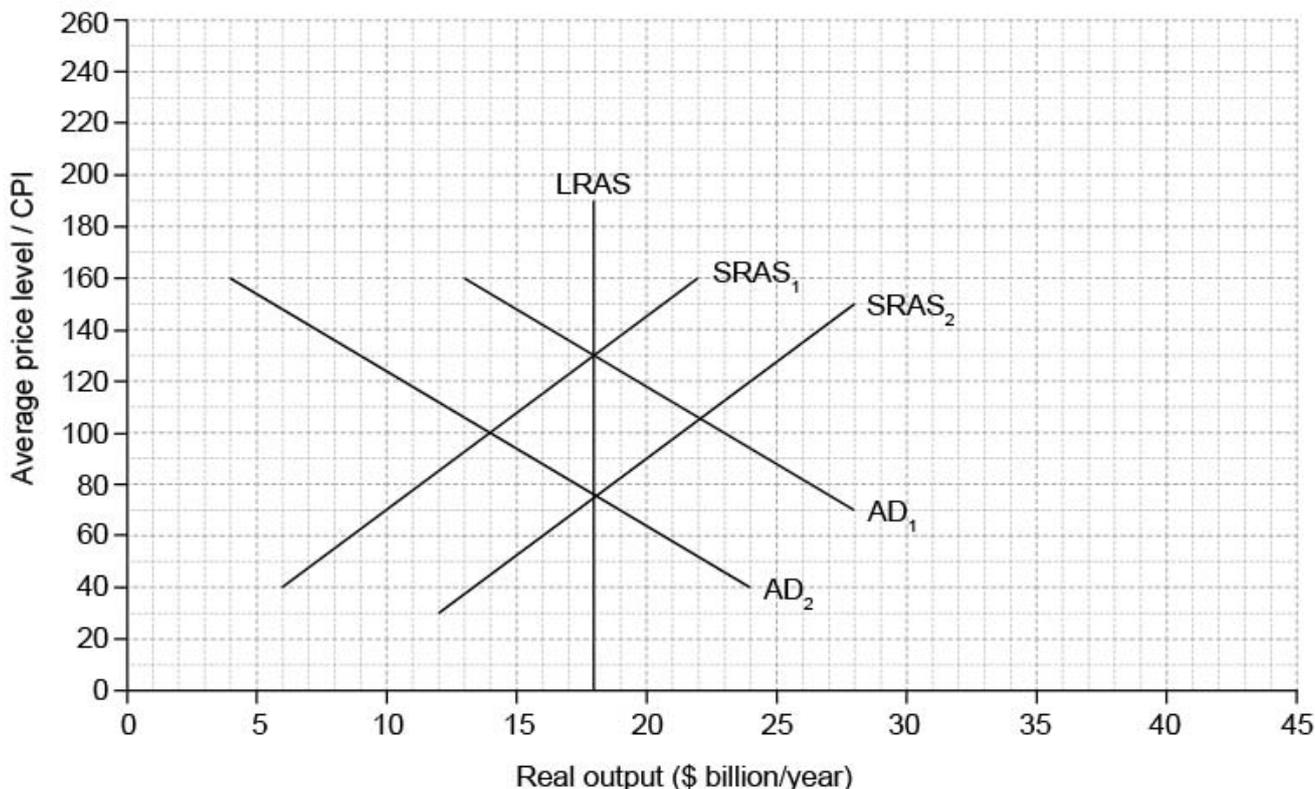
- a decrease in consumer confidence / low consumer confidence
- an increase in the rate of interest / high interest rates
- an increase in household indebtedness / high indebtedness
- an increase in direct taxation / high taxation
- a decrease in wealth.

*Any other reasonable response should be rewarded.*

**N.B.** *A decrease in income or a causal factor such as a decrease in wages can be rewarded as the question does not ask for a reason for a shift in AD.*

*Award [1] for each appropriate response, up to a maximum of [2].*

- (ii) On the diagram, draw and label the new aggregate demand curve following the decrease in consumer expenditure. [1]



Award [1] for an accurate, labelled AD curve.

- (iii) State the amount (in \$ billion) by which the full employment level of output exceeds the short-run equilibrium level of output. [1]

$\$18 \text{ billion} - \$14 \text{ billion} = \$4 \text{ billion}$

An answer of \$4 billion is sufficient for [1].

OFR applies

- (iv) On the diagram, draw and label the long-run aggregate supply curve for Country A. [1]

For drawing a vertical, labelled LRAS at \$18 billion.

- (v) Identify the average price level and level of real output when Country A has returned to long-run equilibrium as a result of the interaction of market forces. [1]

Real output = \$18 billion, APL (measured by CPI) = 75

Accept answers between 70 and 80 inclusive.

Both answers must be correct for the award of [1].

OFR applies

(b) Explain, giving **two** reasons, why the aggregate demand curve has a negative slope. [4]

Level	Marks
0 <i>The work does not reach a standard described by the descriptors below.</i>	<b>0</b>
1 <i>The written response is limited.</i> For providing <b>one</b> reason with limited explanation.	<b>1</b>
For providing <b>one</b> accurate reason or <b>two</b> reasons with limited explanation.	<b>2</b>
2 <i>The written response is accurate.</i> For providing <b>one</b> accurate reason and <b>one</b> reason with limited explanation.	<b>3</b>
For providing <b>two</b> accurate reasons.	<b>4</b>

Reasons **may** include:

- if the average price level increases, then real wealth decreases, so people will spend less (**N.B.** *real income is not acceptable*)
- if the average price level increases, interest rates are likely to rise, discouraging investment and consumer spending
- if the average price level increases, the economy’s exports become less competitive, reducing demand for exports (or (but not in addition to the “export” argument) imports become relatively cheaper, so imports increase).

(c) (i) Calculate the income tax paid in 2015 by an individual earning \$65 000 per year. [2]

$$14\,000 \times 10\% + 16\,000 \times 20\% + 27\,000 \times 32\% = 1400 + 3200 + 8640 \quad [1]$$

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

$$= \$13\,240 \quad [1]$$

(ii) Calculate the average rate of tax paid by the individual in 2016 (assuming the individual’s income remains the same as in 2015). [3]

$$14\,000 \times 8\% + 16\,000 \times 16\% + 27\,000 \times 25\% = 1120 + 2560 + 6750 \quad [1]$$

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

$$= 10430 \quad [1]$$

$$\text{Average rate of tax} = \frac{10\,430}{65\,000} \times 100 = 16.05\% \text{ or } 0.16 \quad [1]$$

*OFR applies if the tax paid is calculated incorrectly.*

- (iii) Explain why a decrease in the rate of direct tax would affect the value of the multiplier in Country A. [2]

The value of the multiplier is given by the equation  $\frac{1}{s+t+m}$  [1]

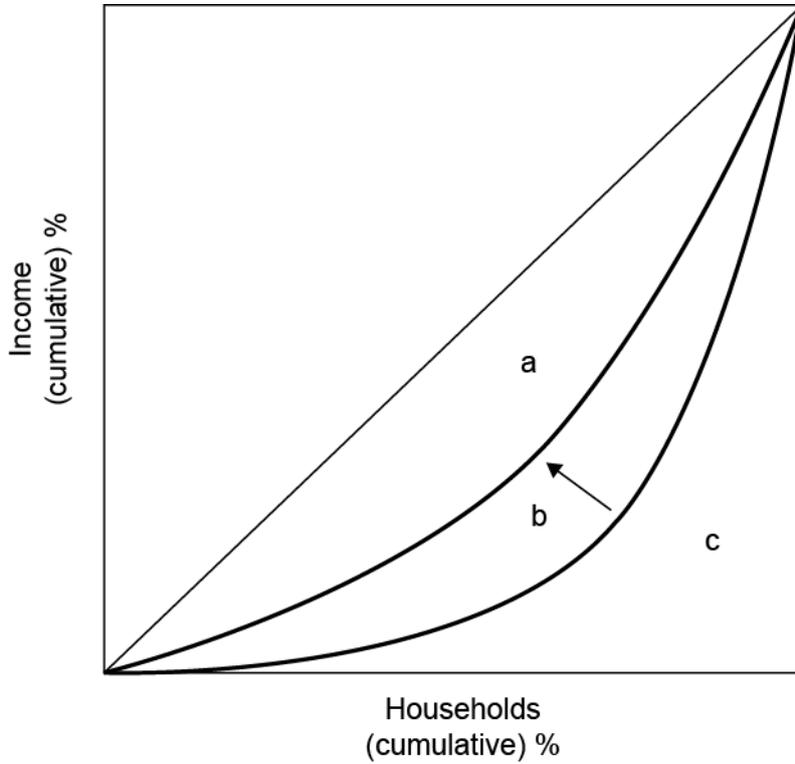
**OR** the idea that consumption will increase

If the rate of direct tax decreases, then, in the equation, t decreases and so the value of the multiplier increases. [1]

***N.B.*** A response which explains that, if the rate of direct taxation falls, then the marginal rate of withdrawal decreases / marginal propensity to consume increases and so the multiplier increases should be fully rewarded.

- (d) (i) In the following box, sketch and label a Lorenz curve for Country A to show the likely effects on the distribution of income if the rate of indirect tax is reduced.

[2]



Level	Marks
0 <i>The work does not reach a standard described by the descriptors below.</i>	0
1 <i>There is a correct Lorenz curve diagram.</i>	1
2 <i>There is a correct Lorenz curve diagram showing a movement towards the line of perfect equality.</i>	2

**N.B.** Full marks cannot be awarded if axes are not labelled appropriately.

*Vertical axis may be % income, or cumulative income.*

*Horizontal axis may be % households/population or cumulative households/population.*

*If correct labels are on the wrong axes or wealth is used instead of income then a maximum of [1] may be awarded.*

*Incorrect labels (eg P and Q) should result in no marks being awarded.*

- (ii) With reference to your diagram in part (d)(i), explain how the Gini coefficient would be derived. **[2]**

Gini coefficient =  $\frac{a + b}{a + b + c}$  or appropriate explanation using the diagram provided.

Level	Marks
0 <i>The work does not reach a standard described by the descriptors below.</i>	<b>0</b>
1 <i>There is a partially accurate attempt to use the areas in the diagram to derive the Gini coefficient.</i>	<b>1</b>
2 <i>There is an accurate demonstration, using the diagram, of how the Gini coefficient is derived.</i>	<b>2</b>

*Any response indicating clear understanding (eg area between diagonal and Lorenz curve over half-square area before or after the change) should be fully rewarded.*

- (e) Explain how the reductions in the rates of income tax in 2016 specified in part (c) may affect equity in the distribution of income in Country A. **[4]**

Level	Marks
0 <i>The work does not reach a standard described by the descriptors below.</i>	<b>0</b>
1 <i>The written response is limited.</i> For an explanation that reducing the rates of income tax according to the data given will make the tax system less progressive, as those on higher incomes will benefit proportionately more.	<b>1–2</b>
2 <i>The written response is accurate.</i> For an explanation that reducing the rates of income tax according to the data given will make the tax system less progressive, as those on higher incomes will benefit proportionately more and that reducing the rates of income tax may be seen as inequitable, as the tax burden is reduced relatively more for those who can afford to pay more tax.	<b>3–4</b>

*An appropriate alternative view should, if explained clearly, be fully rewarded. Eg less revenue is available to the government to assist those on lower incomes.*

3. (a) Calculate the annual expected total expenses measured in Thai baht. [2]

$$30.61 \times (18\,450 + 950) \quad [1]$$

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

$$= \text{THB } 593\,834 \quad [1]$$

*An answer of THB 593 834 without any valid working is sufficient for [1] only.*

(b) Calculate the new exchange rate. [2]

$$30.61 \times (1.0625) \quad [1]$$

$$= \text{THB } 32.52$$

$$\text{AU\$1.00} = \text{THB}32.52 \quad [1]$$

*An answer of THB32.52 without any valid working is sufficient for [1] only.*

(c) Calculate the increase in Thai baht needed to pay for tuition and living expenses during the first year of studies as a result of the currency appreciation. [2]

$$19\,400 \times 32.52 = \text{THB } 630\,888 \quad [1]$$

$$630\,888 - 593\,834$$

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

$$= \text{THB}37\,054$$

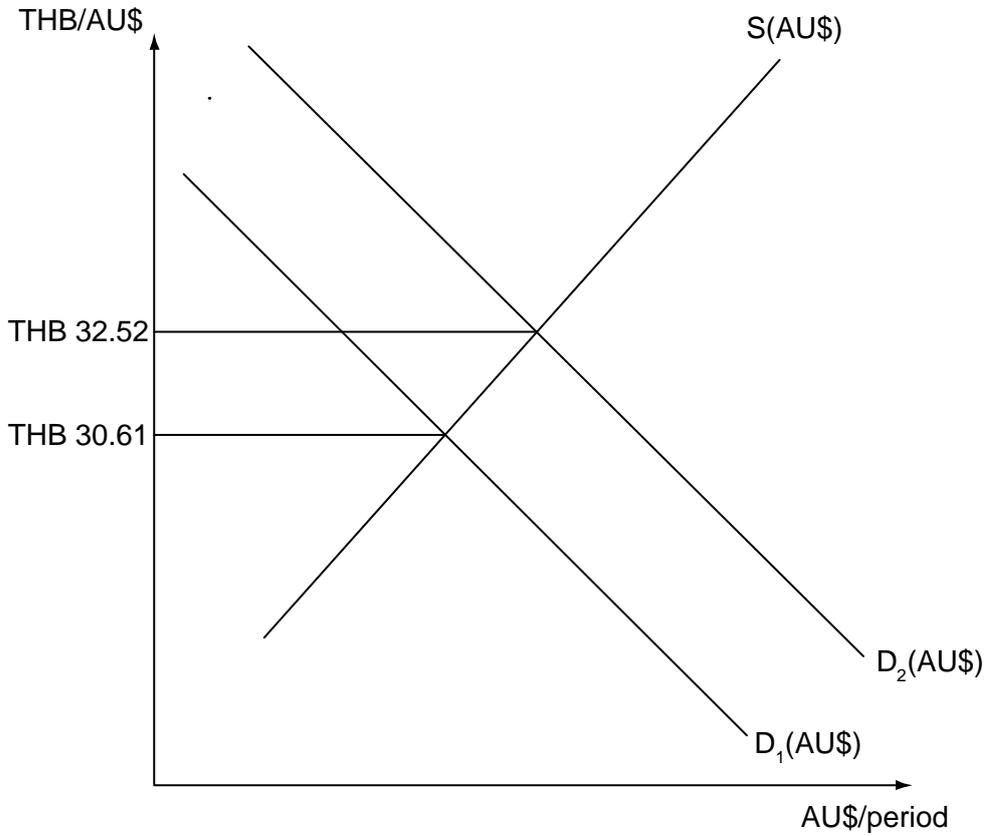
*OFR applies*

*A valid alternative is to multiply the initial expenditure in Thai baht by the percentage increase in the exchange rate and find the difference.*

*A candidate who has used an unrounded figure from part (b) and correctly given an answer of THB37 114.63 should be fully rewarded.*

(d) Sketch on the following axes a fully-labelled diagram illustrating the appreciation of the Australian dollar.

[2]



For an accurate diagram showing a new demand for AU\$ to the right of the original.

[1]

For an accurate and fully labelled diagram.

[1]

*Vertical axis may be labelled Price of AU\$ (in THB), or THB/AU\$ or exchange rate.*

*Horizontal axis may be labelled quantity of AU\$, quantity or AU\$ per period.*

*Candidates may have instead shown the appreciation by shifting S(AU\$) to the left.*

*Actual THB figures on the vertical axis are not necessary.*

- (e) Using the diagram you have drawn in part (d), explain **two** reasons for which the Australian dollar may have appreciated against the Thai baht. **[4]**

Level	Marks
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0	The work does not reach a standard described by the descriptors below.	<b>0</b>
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1	The written response is limited. For a limited explanation of two reasons or for an accurate explanation of only one.	<b>1–2</b>
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2	The written response is accurate. For accurately explaining any two reasons; including:	<b>3–4</b>
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- increased Thai demand for Australia’s exports as the demand for AU\$ would increase
- lower Australian demand for Thai imports as the supply of AU\$ would decrease
- an increase in Australia’s interest rate compared to Thai interest rates as this would create an inflow of investment funds shifting the demand for AU\$ to the right
- relatively higher Thai inflation which will make Thai products less competitive and Australian goods more attractive, thus increasing the demand for AU\$
- increased foreign direct and portfolio investment into Australia causing the demand for AU\$ to increase
- speculation that the AU\$ will appreciate or that Australia’s interest rates will increase.

*Any other valid reason.*

*The explanation provided should match the diagram in part (d) for at least one of the two reasons provided in order to gain full marks; if it does not the candidate may earn up to **[3]**.*

*To gain full marks candidates must specify a change in the causal factors.*

- (f) Define the term *managed float*. **[2]**

Level	Marks
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0	The work does not reach a standard described by the descriptors below.	<b>0</b>
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1	Vague definition. For the idea that in a managed float the government/the Central Bank intervenes in the currency market or that the currency is allowed to float within a band	<b>1</b>
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2	Accurate definition. For explaining that a managed float implies periodic <i>intervention</i> by a Central Bank in order to influence the exchange rate.	<b>2</b>
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- (g) State **one** action the Reserve Bank of Australia could take to prevent a further appreciation of the Australian dollar. [1]

The RBA could:

- sell more AU\$s in the foreign exchange market to increase the supply of AU\$s
- reduce interest rates.

*Any other reasonable response.*

- (h) Using 2009 as the base year, calculate Sweden’s terms of trade for 2010 and 2011. Enter your results in the table. [2]

	Index of export prices	Index of import prices	Terms of trade
<b>2009</b>	100	100	100
<b>2010</b>	93.80	98.91	<b>94.83</b>
<b>2011</b>	83.56	98.23	<b>85.07</b>

2010:  $\left(\frac{93.80}{98.91}\right) \times 100 = 94.83$  [1]

2011:  $\left(\frac{83.56}{98.23}\right) \times 100 = 85.07$  [1]

*Workings are not necessary.*

- (i) Describe the meaning of the change in Sweden’s terms of trade between 2009 and 2011. [2]

Level	Marks
0 <i>The work does not reach a standard described by the descriptors below.</i>	<b>0</b>
1 <i>Vague response.</i> For the idea that the average price of exports has decreased relative to the average price of imports (or, that the terms of trade have deteriorated)	<b>1</b>
2 <i>Accurate response.</i> For providing a description that a greater quantity of exports is required to purchase a unit of imports.	<b>2</b>

OFR applies

- (j) State **two** possible reasons for a change in the terms of trade of a country such as Sweden. [2]

For stating any two of the following:

- changes in demand conditions for exports and imports
- changes in global supply of key inputs (such as oil)
- changes in / high relative inflation rates
- changes in relative exchange rates
- changes in world income levels
- changes in productivity within the country
- technological developments.

*Any other reasonable response*

*Award [1] for each valid response.*

- (k) Explain how the change in Sweden's terms of trade, described in part (i), might improve its current account balance. [4]

Level	Marks
0 <i>The work does not reach a standard described by the descriptors below.</i>	<b>0</b>
1 <i>The explanation provided is limited.</i> The idea that a deterioration in a country's terms of trade makes its products more competitive thus improving its current account balance.	<b>1–2</b>
2 <i>The explanation provided is accurate.</i> For an explanation that a deterioration in a country's terms of trade makes its products more competitive causing exports to increase and/ or imports to decrease <b>and</b> that given appropriate price elasticities of demand for imports and exports the current balance will improve	<b>3–4</b>

*Other valid explanations may be fully rewarded.*

OFR applies

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