

# Markscheme

**May 2023**

**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.
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.
3. A candidate may be penalized for not rounding correctly or for not including the appropriate units. However, a candidate may only be penalized ONCE per script for each type of error.

1. (a) (i) Using the information in **Figure 1**, calculate the price elasticity of demand for capsicums when the price increases from NZ\$18 per kg to NZ\$24 per kg.

[2]

$$PED = \frac{\% \Delta Qd}{\% \Delta P} = \frac{\frac{(40-55)}{55}}{\frac{(24-18)}{18}} = \frac{27.27}{33.33}$$

*Any valid working (correct %Δ Qd or %Δ P, provided the formula is not inverted) is sufficient for [1].*

*= – 0.82 or 0.82 or 0.8̄1 (repeating) or 9/11*

*An answer of – 0.82 or 0.82 or 0.8̄1 without any valid working is sufficient for [1].*

*For full marks to be awarded, the response must provide valid working.*

- (ii) Calculate the loss in consumer surplus resulting from the increase in the price of capsicums from NZ\$18 per kg to NZ\$24 per kg.

[2]

$$(0.5 \times 40\,000 (40 - 24)) - (0.5 \times 55\,000 (40 - 18))$$

**OR**

$$\text{Change in CS} = 0.5 (55\,000 + 40\,000) \times 6$$

*Any valid working is sufficient for [1]*

$$= \$285\,000$$

*An answer of 285 or 285 000 (or –285 or –285 000) without any valid working is sufficient for [1].*

*For full marks to be awarded, the response must provide valid working and include correct units.*

- (iii) Calculate the revenue per kilogram (after tax has been paid) to producers when the price is NZ\$24 per kg.

[2]

$$\text{Revenue/kg} = \frac{24}{1.2}$$

*Any valid working (eg division by 1.2) is sufficient for [1]*

= \$20

*An answer of 20 or \$20 without any valid working is sufficient for [1].*

*For full marks to be awarded, the response must provide valid working and include correct units.*

*A response that calculates total revenue and that produces a correct answer of \$800 000 may be awarded [1].*

- (iv) With reference to **Figure 1**, explain why the price elasticity of demand for capsicums would change if the price continued to increase beyond NZ\$24 per kg.

[4]

Level		Marks
0	<i>The work does not meet a standard described by the descriptors below.</i>	0
1	<i>The written response is limited.</i>	1–2
	For the idea that as price increases from \$24/kg demand will become more price elastic [1] and, therefore, the (absolute) value of PED rises / an accurate calculation of PED that demonstrates how elasticity rises as the price rises [1]	
2	<i>The written response is accurate.</i>	3–4
	For an explanation that as price increases beyond \$24/kg demand will become more price elastic/more responsive to an increase in price / accurate calculation [2] because of <b>one</b> of the following [2]: <ul style="list-style-type: none"> <li>• As price increases consumers will be <b>more</b> inclined to purchase a substitute good instead of capsicums</li> <li>• As price increases the proportion of income spent on capsicums/the product will increase</li> <li>• As price increases the % change in quantity demanded of capsicums increases while the % change in price decreases</li> <li>• <math>PED = (1/\text{slope}) \times (P/Q)</math>. Since <math>(1/\text{slope})</math> is a constant and P and Q move in opposite directions then necessarily when P changes the Q of capsicums and PED will change.</li> </ul>	

*A response that does not make some reference to the diagram (eg linear demand curve; capsicums; a calculation) may be awarded a maximum of [3].*

- (v) Define the term *market power*.

[2]

Level		Marks
0	<i>The work does not meet a standard described by the descriptors below.</i>	0
1	<i>Vague definition</i> The idea that a firm faces a negatively sloped demand curve <b>OR</b> that it arises when a firm dominates/controls the market <b>OR</b> it is the control that a firm has over the market.	1
2	<i>Accurate definition</i> An understanding that it is the ability of a firm to set the price.	2

- (vi) With specific reference to the information in **Figure 2**, explain how two firms acting as a monopolist by colluding on price could lead to market failure.

[4]

Level		Marks
0	<i>The work does not meet a standard described by the descriptors below.</i>	0
1	<i>The written response is limited.</i> For an explanation that the profit-maximizing level of output is 80 000 kg while the allocatively efficient level of output is 110 000 kg <b>OR</b> indicating the welfare loss accurately, showing the relevant quantities, on the diagram <b>OR</b> An explanation that monopoly power can lead to the firm producing at a level of output below the allocatively efficient level of output/producing where $P > MC$ .	1–2
2	<i>The written response is accurate.</i> For an explanation that the profit-maximizing level of output is 80 000 kg while the allocatively efficient level of output is 110 000 kg <b>OR</b> indicating the welfare loss accurately, showing the relevant quantities, on the diagram <b>AND</b> An explanation that monopoly power can lead to the firm producing at a level of output below the allocatively efficient level of output/producing where $P > MC$ .	3–4

- (vii) Using the data provided in **Figure 2**, calculate the profit earned by these firms if they are operating at the profit-maximizing level of output in the market for cheese.

[2]

$$\text{Profit} = (26 - 18) 80$$

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

$$= \$640\,000$$

*An answer of 640 or 640 000 without any valid working is sufficient for [1].*

*For full marks to be awarded, the response must provide valid working and include correct units.*

- (viii) **Question removed.**

- (b) Using the text/data provided and your knowledge of economics, recommend a policy which could be introduced by the New Zealand Commerce Commission to limit the possible abuse of market power in the supermarket industry in New Zealand.

[10]

*Possible policies **may** include (but are not restricted to):*

- Legislation to force supermarkets to sell part of their business/their land
- Removing barriers to the entry of new competitors
- Sponsoring or facilitating a new competitor
- Price regulation
- Government ownership/nationalization
- Government policy to release more land for building shops/retail activities (deregulation)
- Fines that arise from fair-trading laws (anti-trust legislation)
- Windfall tax on super normal profits
- Any other valid policy.

### Assessment Criteria

**Recommend**—present an advisable course of action with appropriate supporting evidence/reason in relation to a given situation, problem or issue.

Marks	Level descriptor
0	<ul style="list-style-type: none"> <li>The work does not reach a standard described by the descriptors below.</li> </ul>
1–2	<ul style="list-style-type: none"> <li>The response identifies a policy.</li> <li>The response uses no economic theory to support the recommendation.</li> <li>Economic terms are stated but are not relevant.</li> <li>The response contains no use of text/data to support the recommendation.</li> <li>The response contains no evidence of synthesis or evaluation.</li> </ul>
3–4	<ul style="list-style-type: none"> <li>The response identifies an appropriate policy.</li> <li>The response uses limited economic theory to support the recommendation in a superficial manner.</li> <li>Some relevant economic terms are included.</li> <li>The response contains no use of relevant text/data to support the recommendation.</li> <li>The response contains evidence of superficial synthesis or evaluation.</li> </ul>
5–6	<ul style="list-style-type: none"> <li>The response identifies and explains an appropriate policy.</li> <li>The response uses relevant economic theory to partially support the recommendation.</li> <li>Some relevant economic terms are used appropriately.</li> <li>The response includes some relevant information from the text/data to support the recommendation.</li> <li>The response contains evidence of appropriate synthesis or evaluation but lacks balance.</li> </ul>
7–8	<ul style="list-style-type: none"> <li>The response identifies and fully explains an appropriate policy.</li> <li>The response uses relevant economic theory to support the recommendation.</li> <li>Relevant economic terms are used mostly appropriately.</li> <li>The use of information from the text/data is generally appropriate, relevant and applied correctly to support the recommendation.</li> <li>The response contains evidence of appropriate synthesis or evaluation that is mostly balanced.</li> </ul>
9–10	<ul style="list-style-type: none"> <li>The response identifies and fully explains an appropriate policy.</li> <li>The response uses relevant economic theory effectively to support the recommendation.</li> <li>Relevant economic terms are used appropriately throughout the response.</li> <li>The use of information from the text/data is appropriate, relevant and supports the analysis/evaluation effectively.</li> <li>The response contains evidence of effective and balanced synthesis or evaluation.</li> </ul>

2. (a) (i) Using the information provided in **Table 1**, calculate the inflation rate for Nigeria between 2020 and 2021. [2]

$$\frac{361.2 - 310.2}{310.2} \times 100$$

*Any valid working is sufficient for [1]*

$$= 16.44\% \text{ or } 16.44$$

*An answer of 16.44 without any valid working is sufficient for [1].*

*A response that uses the percentage change in the GDP deflator to provide an answer may be fully rewarded.*

$$\frac{230.09 - 202.67}{202.67} \times 100$$

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

$$= 13.53\% \text{ or } 13.53$$

*An answer of 13.53 without any valid working is sufficient for [1].*

- (ii) Using the information provided in **Table 1**, calculate the real GDP in naira for Nigeria in 2020. [2]

$$\frac{142\,588}{202.67} \times 100$$

*Any valid working is sufficient for [1] (eg if x100 has been neglected).*

$$= 70\,354.76 \text{ billion or } 70\,355 \text{ billion [1]}$$

*An answer of 70 354.76 billion or 70 355 billion without any valid working is sufficient for [1].*

- (iii) Using the information provided in Table 1 and your answer to part (a)(ii), calculate the real GDP per capita in naira for Nigeria in 2020. [2]

$$\frac{70\,354.76 \text{ b}}{206 \text{ m}}$$

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

$$= 341\,528 \text{ or } 341\,529$$

*Where a response provides an answer correct to 2 decimal places, assume correct rounding to the nearest naira and award as appropriate.*

*An answer of 341 528 or 341 529 without any valid working is sufficient for [1].*

*OFR applies from part (ii).*

*A response that uses 2021 figures accurately may be awarded [2].*



$$\frac{69\,562.35\,b}{212\,m}$$

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

$$= 328\,124 \text{ or } 328\,123$$

*An answer of 328 124 or 328 123 without any valid working is sufficient for [1].*

*Where a response provides an answer correct to 2 decimal places, assume correct rounding to the nearest naira and award as appropriate.*

- (iv) A Nigerian business pays US\$14 000 every year to a consultant in the United States. Using the information in **Table 2**, calculate the increase in the cost of this payment, in naira, between 2018 and 2020. [2]

$$2018: 14\,000 \times 306.5 = 4\,291\,000$$

$$2020: 14\,000 \times 379.5 = 5\,313\,000$$

$$\text{Increase} = 5\,313\,000 - 4\,291\,000$$

*Any valid working (either 2018 or 2020 is correct) is sufficient for [1].*

$$= 1\,022\,000$$

*An answer of 1 022 000 without any valid working is sufficient for [1].*

(v) Define the term *overvalued currency*.

[2]

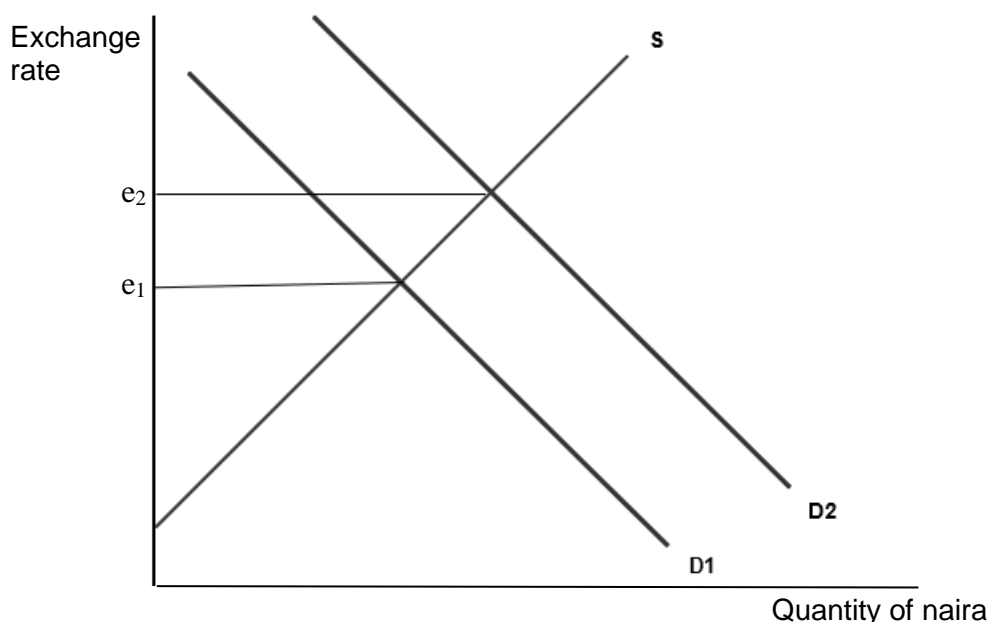
Level		Marks
0	<i>The work does not meet a standard described by the descriptors below.</i>	0
1	<i>Vague definition.</i>	1
	For the idea that a currency is too strong.	
2	<i>Accurate definition.</i>	2
	For a clear understanding that it is a currency whose exchange rate is maintained above the equilibrium or free market value or floating rate value.	

(vi) Using an exchange rate diagram, explain how the Central Bank of Nigeria might attempt to maintain a fixed exchange rate.

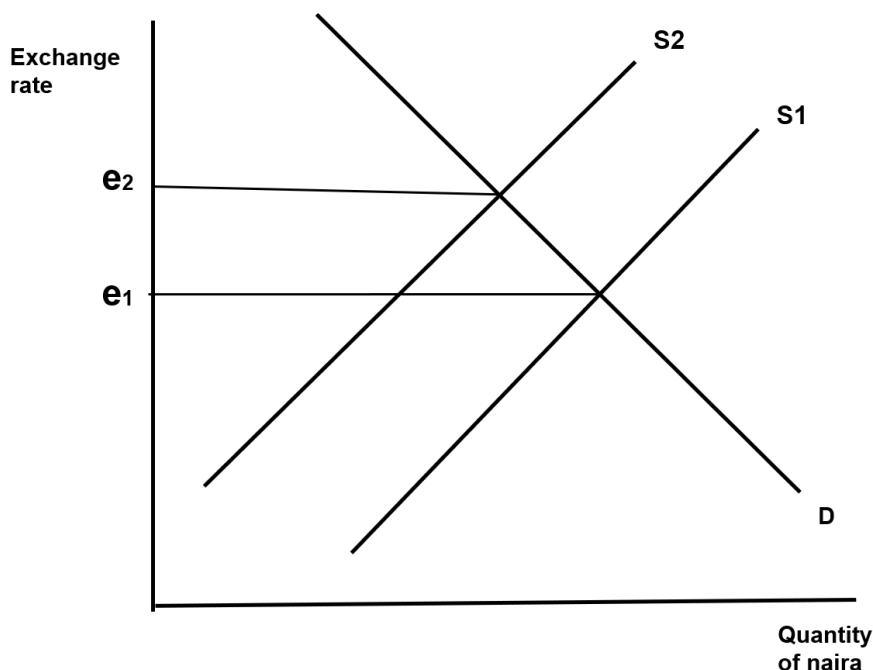
[4]

Level		Marks
0	<i>The work does not meet a standard described by the descriptors below.</i>	0
1	<i>Vague definition.</i>	1
	For drawing a correctly labelled exchange rate diagram with a shift of the demand curve for the naira to the right and an increase in the exchange rate <b>OR</b> for an explanation that the central bank is selling foreign currency to purchase naira, thus increasing the demand for naira on the foreign exchange market and bringing the price of the naira back to the fixed rate.	
2	<i>The written response is accurate.</i>	2
	For drawing a correctly labelled exchange rate diagram with a shift of the demand curve for the naira to the right and an increase in the exchange rate <b>AND</b> for an explanation that the central bank is selling foreign currency to purchase naira, thus increasing the demand for naira on the foreign exchange market and bringing the price of the naira back to the fixed rate.	

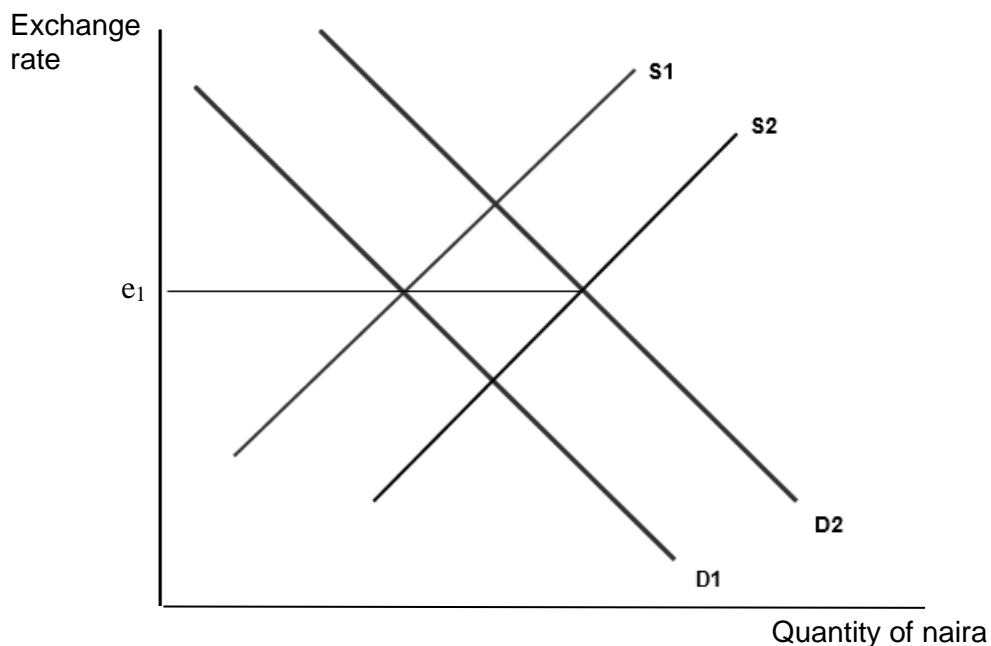
*An alternative approach which suggests that the central bank may increase the interest rate, which may increase the demand for naira, may be fully rewarded.*



Alternatively, the increase in interest rates may decrease the supply of naira, as investors may be discouraged from selling naira in the foreign exchange market in order to invest overseas, **OR** the central bank reduces its sales of naira, which shifts supply to the left. Therefore, a diagram which shows a shift of supply of naira to the left should be rewarded.



Another valid approach would be to show that, at the fixed exchange rate, a surplus of naira would need to be offset by the central bank purchasing naira, thus increasing demand for the naira.



*For an exchange rate diagram, the vertical axis may be exchange rate, price/value of the naira in US\$, US\$/naira or US\$ per naira. The horizontal axis should be quantity, or quantity of naira. A title is not necessary.*

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

- (vii) Calculate the cost of this shipment in US\$ at the official exchange rate (**Table 2**).

[2]

$$\frac{800\,000}{379.5}$$

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

$$= 2\,108.04$$

*An answer of 2 108.04 without any valid working is sufficient for [1].*

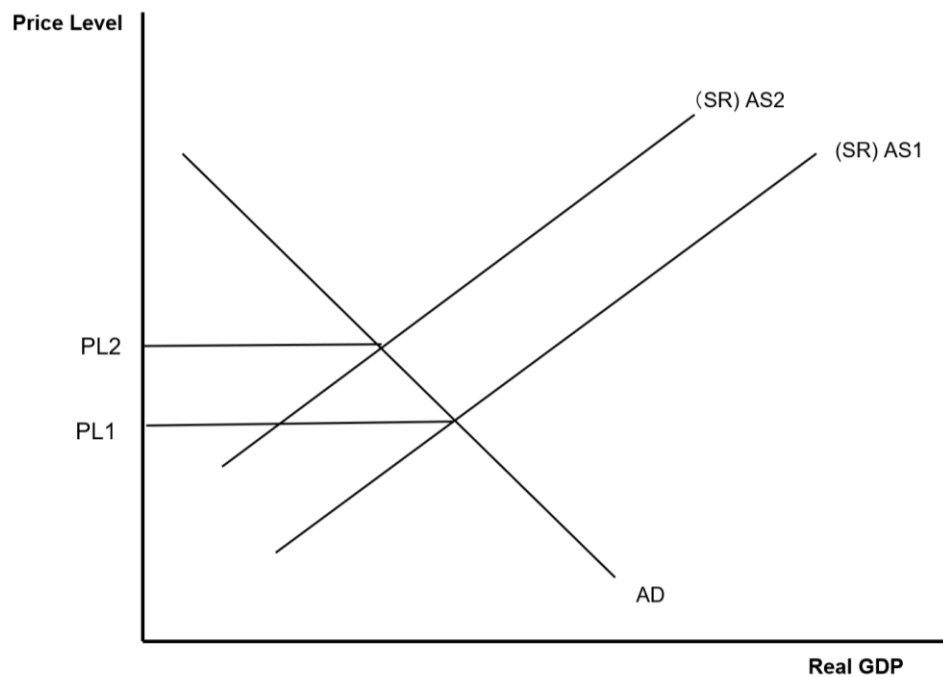
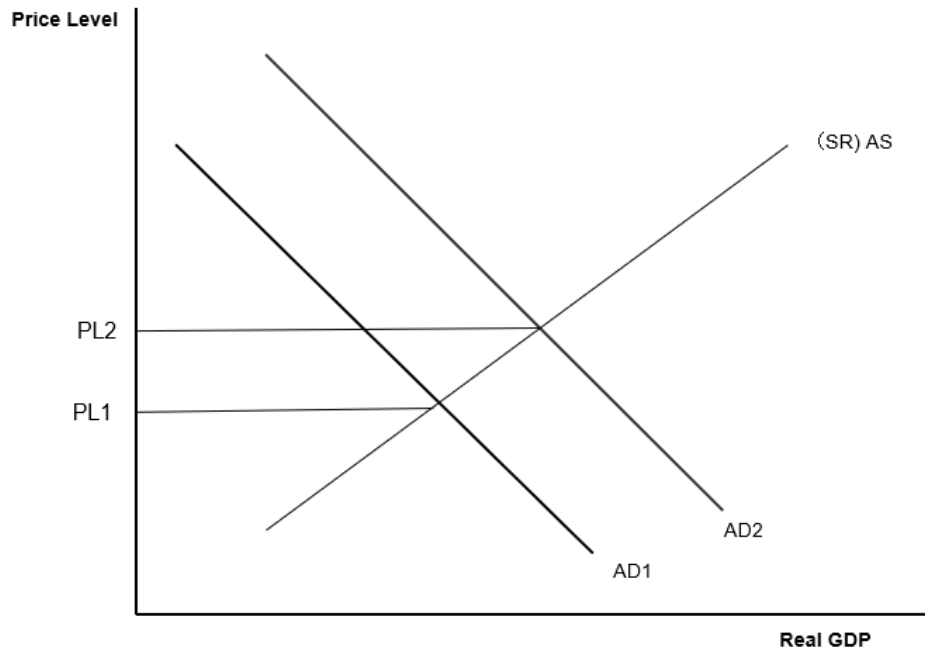
- (viii) Using an AD/AS diagram and information from **Table 2**, explain how the change in the official value of the naira between 2018 and 2020 might have influenced the rate of inflation for Nigeria.

[4]

Level		Marks
0	<i>The work does not meet a standard described by the descriptors below.</i>	0
1	<i>The written response is limited.</i>	1–2
	For drawing a correctly labelled AD/AS diagram showing a rise in aggregate demand and an increase in the average price level <b>OR</b> for explaining that a fall in the price of the naira will result in an increase in net exports (X-M), due to cheaper exports and/or more expensive imports, which increases AD, causing (demand-pull) inflation.	
2	<i>The written response is accurate.</i>	3–4
	For drawing a correctly labelled AD/AS diagram showing a rise in aggregate demand and an increase in the average price level <b>AND</b> for explaining that a fall in the price of the naira will result in an increase in net exports (X-M), due to cheaper exports and/or more expensive imports, which increases AD, causing (demand-pull) inflation.	

*Candidates might explain that the depreciating naira results in an increase in the cost of imported inputs and therefore, a fall in (short-run) aggregate supply, resulting in (cost-push) inflation. This alternative approach should be fully rewarded.*

*If the student assumes that the naira has appreciated (revalued), an accurate diagram (with AD shifting left or SRAS shifting right) and explanation may be stamped **ECF** and awarded a maximum of [2].*



Candidates who incorrectly label diagrams can be awarded with a maximum of **[3]**.

For AD/AS, the vertical axis may be Average (General) Price Level, APL or Price level. The horizontal axis may be real output, real national output, real income, real national income, real GDP or real Y. A title is not necessary. LRAS may be shown in any appropriate position. Aggregate supply may be labelled SRAS or AS.

If AD shifts and SRAS is omitted, but LRAS is present, then the diagram may be rewarded.

- (b) Using the text/data provided and your knowledge of economics, recommend a policy which could be introduced in Nigeria to stabilize the value of the naira.

**[10]**

*Possible policies **may** include (but are not restricted to):*

- Policies to increase the export of manufactured goods (supply-side policies)
- Interest rate increase
- Exchange controls – limiting access to foreign currency
- Adopting a floating exchange rate
- Demand-management policies to limit imports (expenditure reducing)
- Trade barriers to reduce import spending (expenditure switching)
- Borrowing from overseas
- Attempt to persuade fellow OPEC members to increase the world price of oil
- Tax and other incentives to encourage inward foreign direct investment and portfolio investment
- Since most rice is imported, incentives to agricultural sector to grow rice
- Any other valid policy.

### Assessment Criteria

**Recommend**—present an advisable course of action with appropriate supporting evidence/reason in relation to a given situation, problem or issue.

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1–2	<ul style="list-style-type: none"> <li>The response identifies a policy.</li> <li>The response uses no economic theory to support the recommendation.</li> <li>Economic terms are stated but are not relevant.</li> <li>The response contains no use of text/data to support the recommendation.</li> <li>The response contains no evidence of synthesis or evaluation.</li> </ul>
3–4	<ul style="list-style-type: none"> <li>The response identifies an appropriate policy.</li> <li>The response uses limited economic theory to support the recommendation in a superficial manner.</li> <li>Some relevant economic terms are included.</li> <li>The response contains no use of relevant text/data to support the recommendation.</li> <li>The response contains evidence of superficial synthesis or evaluation.</li> </ul>
5–6	<ul style="list-style-type: none"> <li>The response identifies and explains an appropriate policy.</li> <li>The response uses relevant economic theory to partially support the recommendation.</li> <li>Some relevant economic terms are used appropriately.</li> <li>The response includes some relevant information from the text/data to support the recommendation.</li> <li>The response contains evidence of appropriate synthesis or evaluation but lacks balance.</li> </ul>
7–8	<ul style="list-style-type: none"> <li>The response identifies and fully explains an appropriate policy.</li> <li>The response uses relevant economic theory to support the recommendation.</li> <li>Relevant economic terms are used mostly appropriately.</li> <li>The use of information from the text/data is generally appropriate, relevant and applied correctly to support the recommendation.</li> <li>The response contains evidence of appropriate synthesis or evaluation that is mostly balanced.</li> </ul>
9–10	<ul style="list-style-type: none"> <li>The response identifies and fully explains an appropriate policy.</li> <li>The response uses relevant economic theory effectively to support the recommendation.</li> <li>Relevant economic terms are used appropriately throughout the response.</li> <li>The use of information from the text/data is appropriate, relevant and supports the analysis/evaluation effectively.</li> <li>The response contains evidence of effective and balanced synthesis or evaluation.</li> </ul>