

# Markscheme

**May 2022**

**Economics**

**Higher level**

**Paper 3**

16 pages

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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, failing to give answers correct to 2 dp or, in some cases, for not including the appropriate units. However, a candidate may only be penalized ONCE per script (not per part) for each type of error.

1. (a) (i) Using the information provided in **Table 1**, calculate the rate of unemployment for Burundi in 2019. [2]

$$\frac{74\,750}{4\,908\,500 + 74\,750} \times 100$$

*Any valid working should be rewarded with [1].*

= 1.5%

*An answer of 1.5 or 1.5% without working is sufficient for [1].*

**NB** *An answer of 1.52 arises because of incorrect working and so should be awarded [0].*

- (ii) Explain why dependence on primary sector production may be considered a barrier to economic development.

[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 an explanation that, as a result of the low PED of agricultural products / the volatility of supply (weather; disease), prices and thus farmers' incomes fluctuate from year to year.<br><br><i>Any reasonable approach that focuses on issues related to primary sector production/incomes should be rewarded.</i>   |       |
| 2     | <i>The written response is accurate.</i>  | 3–4   |
|       | For an explanation that, as a result of the low PED of agricultural products / the volatility of supply (weather; disease), prices and thus farmers' incomes fluctuate from year to year <b>AND</b> for an explanation that this volatility prevents farmers from saving and investing in physical capital, human capital and other pro-development objectives (poverty-cycle can be used).<br><br>Alternatively, candidates can explain that:<br><ul style="list-style-type: none"> <li>- dependence on the primary (agricultural) sector may prevent these countries from diversifying into the higher value-added manufacturing sector restricting their opportunities for economic development <i>ie</i> investing in human capital and other pro-development objectives</li> <li>- primary agricultural products are characterised by low YED which restricts the opportunity for export-led growth and thus for investments in pro-development objectives. <i>ie</i> investing in human capital and other pro-development objectives</li> </ul><br><i>Any other valid response.</i> |       |

**NB** A response that links only to growth can be awarded a maximum of [3]. Similarly, if development is merely stated, but not linked, then a maximum of [3] is awarded.

- (iii) Using the information in **Figure 1**, calculate the price elasticity of demand for gold in Burundi when price increases from \$1500 per oz to \$1800 per oz.

[2]

$$PED = \frac{\% \Delta Qd}{\% \Delta P} = \frac{-20}{20}$$

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

= -1 or 1

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

**NB** A response in which the formula is inverted should be awarded [0].

- (iv) Using the information in **Figure 1**, calculate the change in the value of Burundi’s gold exports resulting from the increase in the price of gold from \$1500 per oz to \$1800 per oz. [2]

Initial value =  $1000 (70 - 25) \times 1500 = 67\,500\,000$

New value =  $1000 (85 - 20) \times 1800 = 117\,000\,000$

*Any valid working (initial or final value) is sufficient for [1].*

Change in value = US\$117 million – US\$67.5 million

= US\$49.5 million or US\$49 500 000

*An answer of 49.5 or 49.5 million or \$49.5 million without any valid working is sufficient for [1].*

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

- (v) Define the term *progressive tax*. [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 it is a tax for which higher income earners pay more.   |       |
| 2     | <i>Accurate definition</i>  | 2     |
|       | A clear understanding that it is a tax system where those on higher incomes pay a higher percentage / pay proportionally more of their income as tax<br><br><b>OR</b> a tax system where a person’s marginal tax rate is higher than their average rate / the average tax rate increases as income increases<br><br><b>OR</b> where the fraction of income paid as tax increases as income increases. |       |

- (vi) Calculate the amount of VAT which was paid on the purchase of this equipment. [2]

$(32\,000/1.2) \times 0.2$

*Any valid working should be rewarded with [1].*

= Fbu 5333.33

*An answer of 5333 without workings is sufficient for [1].*

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

- (vii) Sketch an AD/AS diagram to illustrate the possible effect on the Burundian economy in the long run if the government reduces the rate of corporate income tax from 30% to 26%.

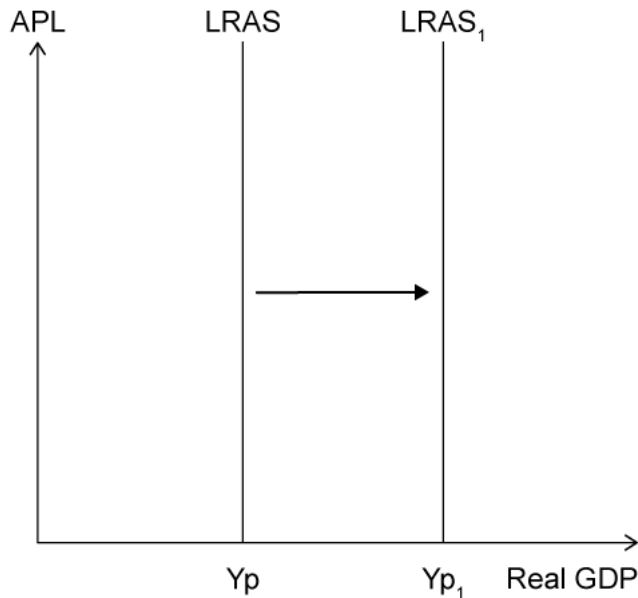
[2]

| Level |   | Marks |
|-------|---|-------|
| 0     | The work does not meet a standard described by the descriptors below.   | 0     |
| 1     | The response is limited   | 1     |
|       | For an AD/AS diagram showing a shift of LRAS to the right.  |       |
| 2     | The response is accurate  | 2     |
|       | For a correctly labelled AD/AS diagram showing a shift of the LRAS curve to the right and a new higher level of (potential) output (a shift of AD and/or SRAS to the right are optional). |       |

For AD/AS, the vertical axis may be Average (General) Price Level, or Price Level. The horizontal axis may be real output, real national output, real income, real national income, real GDP or real Y. Any abbreviation of the previous terms is acceptable. A title is not necessary.

**NB** A Keynesian diagram with AS shifting to the right and showing a higher (full employment/potential) output level is also acceptable.

A diagram which is not fully labelled may be awarded a maximum of [1].



(viii) With reference to the data in **Table 3**, explain **two** ways in which gender inequality might act as a barrier to economic development in Burundi.

[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   |
|       | <p><i>For a limited explanation of <b>one</b> reason, award a maximum of [1].</i></p> <p><i>For an accurate explanation of <b>one</b> reason (refer to L2) <b>OR</b> a limited explanation of <b>two</b> reasons, award a maximum of [2].</i></p> <p><i>Limited explanations <b>may</b> include:</i></p> <ul style="list-style-type: none"> <li>• High child mortality/poor maternal health</li> <li>• Low opportunities for females to be educated <b>OR</b> high birth rates</li> <li>• Low access to credit for women</li> <li>• Low opportunities for paid employment.</li> </ul> <p><i>Any other valid response.</i></p>  |       |
| 2     | <i>The written response is accurate.</i>   | 3–4   |
|       | <p><i>For an accurate explanation of <b>one</b> reason <b>AND</b> a limited explanation of <b>one other</b> reason, award a maximum of [3].</i></p> <p><i>For an accurate explanation of <b>two</b> reasons, award a maximum of [4].</i></p> <p><i>A response that does not refer explicitly to the data in <b>Table 3</b> should be awarded a maximum of [3].</i></p> <p><i>Accurate explanations <b>may</b> include:</i></p> <ul style="list-style-type: none"> <li>• Lack of healthcare for women may lead to low levels of health for women and their children</li> <li>• Low education levels for females may lead to high birth rates and restrict their income earning potential, thus leading to poverty / will limit the availability of skilled labour and enterprise in the economy</li> <li>• Lack of access to credit will restrict the ability of women to borrow and invest in education/ enterprise, limiting potential output</li> <li>• Lack of opportunities for women in tertiary education (eg engineering) will restrict them from earning income and from supporting their children.</li> </ul> <p><i>Any other valid response.</i></p> |       |

- (b) Using the text/data provided and your knowledge of economics, recommend a policy which could be introduced by the government of Burundi to reduce income inequality in Burundi.

[10]

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

- a more progressive tax system
- investment in human capital (education or health)
- policies to promote women's empowerment
- transfer payments
- wider tax base (more effective tax collection/reducing tax avoidance)
- policies to reduce inequalities of opportunity
- transfer payments
- targeted spending on goods and services, including merit goods
- policies to reduce discrimination
- minimum wage legislation
- any other valid policy.

**NB** *If more than one policy is recommended, only the best policy should be rewarded, unless the policies are shown to be complementary or if they are compared/contrasted with the student's one chosen 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 a diagram and the information above, explain why traffic congestion in India may be considered an example of market failure.

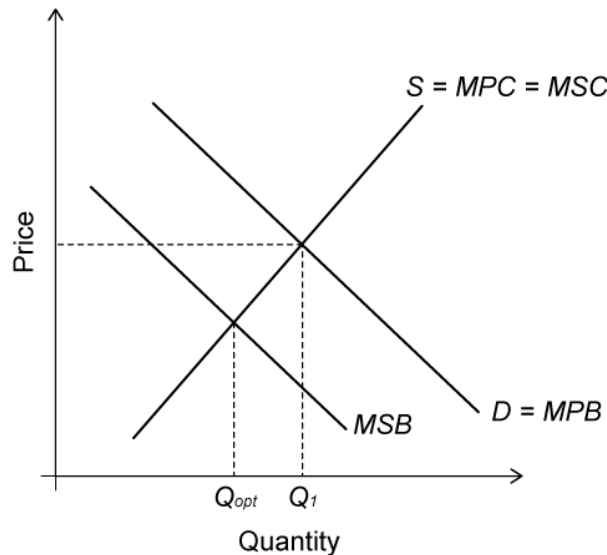
[4]

| 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 a market diagram showing a negative externality of consumption, with equilibrium output higher than the socially optimum level of consumption (or an accurate welfare loss) <b>OR</b> an explanation that traffic congestion represents a negative externality arising from the use of vehicles.  |       |
| 2     | The written response is accurate.   | 3–4   |
|       | For a market diagram showing a negative externality of consumption, with equilibrium output higher than the socially optimum level of consumption (or an accurate welfare loss) <b>AND</b> an explanation that traffic congestion represents a negative externality arising from the use of vehicles. |       |

Candidates who label the diagram incorrectly can be awarded a maximum of [3].

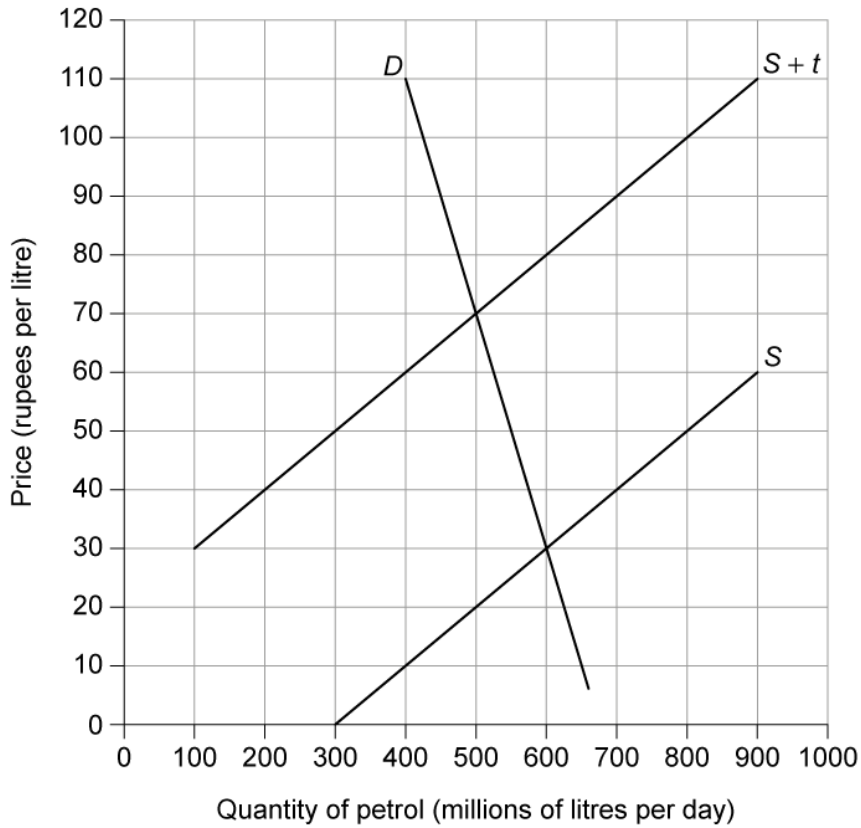
The y axis may be labelled price or P and/or costs and/or benefits, and the x axis labelled quantity or Q. A title is not necessary. S and D are not required to be part of the labelling.

Negative consumption externality



(ii) On **Figure 2**, draw the market supply curve **without** the indirect taxes for petrol in New Delhi.

[2]



| Level |  |
|-------|--|
| 0     | <i>The work does not meet a standard described by the descriptors below.</i>   |
| 1     | <i>The response is limited</i><br>For an upward-sloping supply curve below the original.                                 |
| 2     | <i>The response is accurate</i><br>For an accurate labelled supply curve (parallel and 50 rupees below the S + t curve). |

- (iii) Using **Figure 2**, calculate the revenue (in rupees per day) collected from the indirect taxes on petrol in New Delhi. [2]

50 x 500 (million)

*Any valid working should be rewarded with [1]*

= (RPs) 25 billion (or 25 000 million or 25 000 000 000)

**NB** as rupees is stated in the question, it is not necessary to include it in the response.

*An answer of 25 billion (or 25 000 million or 25 000 000 000) without workings is sufficient for [1]*

*OFR applies provided the S curve is drawn below the S + t curve (ie the vertical distance between the curves may be incorrect).*

**NB** the symbol ₹ may be used for the Indian rupee.

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

- (iv) Using **Figure 2** and your answer to part (a)(ii), calculate the loss in consumer surplus which results from the imposition of indirect taxes on petrol in New Delhi. [2]

40 x 0.5 (500 + 600) (million)

*Any valid working should be rewarded with [1]*

= RPs 22 billion (or 22 000 million or 22 000 000 000)

*An answer of RPs 22 billion (or 22 000 million or 22 000 000 000) without workings is sufficient for [1]*

*OFR applies provided the S curve is drawn below the S + t curve.*

**NB** If a student finds the y intercept (of the demand curve, which is 270) and calculates the difference between two triangles, the working should be as follows:

$$0.5 (240 \times 600) - 0.5 (200 \times 500) = 72\,000 - 50\,000$$

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

- (v) Using **Figure 2** and your answer to part (a)(ii), show that in the absence of indirect taxes the supply of petrol in New Delhi would be price inelastic.

[2]

| 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     |
|       | For an inaccurate calculation of PES with some valid working<br><br><b>OR</b> for only stating that $PES < 1$ (or for providing a number less than 1)<br><br><b>OR</b> for stating that the S curve is steep and so inelastic.  |       |
| 2     | <i>The written response is accurate.</i>  | 2     |
|       | For an accurate calculation of PES using two points on the curve showing $PES < 1$ <b>OR</b> an explanation that any straight line supply curve which intersects the horizontal axis must show price inelastic supply.<br><br><b>NB</b> There are several calculations which could legitimately be used, depending on the initial price and quantity selected. One example is that, at the original equilibrium,<br>$PES = (1/6)/(10/30) = 0.5$<br><br>Another along the length of the S curve with P falling to P = 0 is:<br>$PES = (600/900)/(60/60) = 2/3 = 0.67$<br><br>Examiners will need to check carefully the accuracy of such calculations. |       |

- (vi) Using **Figure 2** and the information in **Table 4**, calculate the total profit earned by petrol suppliers in New Delhi per day.

[2]

3 x 500 (million)

*Any valid working should be rewarded with [1].*

= RPs 1.5 billion (or 1 500 million or 1 500 000 000)

*An answer of RPs 1.5 billion (or 1 500 million or 1 500 000 000) without workings is sufficient for [1].*

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

(vii) Define the term *rational consumer choice*.

[2]

| Level |   | Marks |
|-------|---|-------|
| 0     | <i>The work does not meet a standard described by the descriptors below.</i>  | 0     |
| 1     | <i>Vague definition</i><br>For the idea that consumers make sensible decisions.   | 1     |
| 2     | <i>Accurate definition</i><br>For a clear understanding that consumers (are assumed to) make decisions (at the margin) which maximize their utility.<br><b>OR</b><br>For an answer that explains that rational consumer choice requires that preferences are complete (consumers able to rank all bundles/baskets of goods) / they are transitive (consistent) / more is preferred to less. | 2     |

(viii) With reference to the use of cars in India, explain how **one** limitation of the assumptions of rational consumer choice might result in the over-use of cars in New Delhi.

[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><br>For an explanation of <b>one</b> limitation of rational consumer choice (eg consumers may often make choices without the time or ability to gather all the relevant information (bounded rationality))<br><br><b>OR</b> an explanation of how <b>one</b> limitation of rational consumer choice might lead to the over-consumption of cars in New Delhi (eg drivers in New Delhi are not able to evaluate all the alternatives to driving, such as the use of “ride share services, and hence make “irrational” decisions).    | 1–2   |
| 2     | <i>The written response is accurate.</i><br>For an explanation of <b>one</b> limitation of rational consumer choice (eg consumers may often make choices without the time or ability to gather all the relevant information (bounded rationality))<br><br><b>AND</b> an explanation of how <b>one</b> limitation of rational consumer choice might lead to the over-consumption of cars in New Delhi (eg drivers in New Delhi are not able to evaluate all the alternatives to driving, such as the use of “ride share services”, and hence make “irrational” decisions). | 3–4   |

**NB** A range of valid responses is available for this question. Candidates should be fully rewarded if they provide a well-explained answer which applies other limitations of the assumptions of rational consumer choice such as:

- *biases: availability, anchoring, social conformity, inertia*
- *bounded self-control*
- *any valid response.*

- (b) Using the text/data provided and your knowledge of economics, recommend a policy which could be introduced by the government of India in order to address the problem of traffic congestion in New Delhi.

[10]

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

- Indirect taxation on vehicles
- Increased indirect taxation on petrol
- Investment in public transport
- Investment in transport infrastructure
- Subsidized ride-sharing services
- Rationing the use of motor vehicles (eg even/odd number plate days)
- Behavioural economic policies, such as, choice architecture eg Nudge theory
- Legislation
- A congestion charge
- Any other valid policy.

**NB** *If more than one policy is recommended, only the best policy should be rewarded, unless the policies are shown to be complementary or if they are compared/contrasted with the student's one chosen 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> |