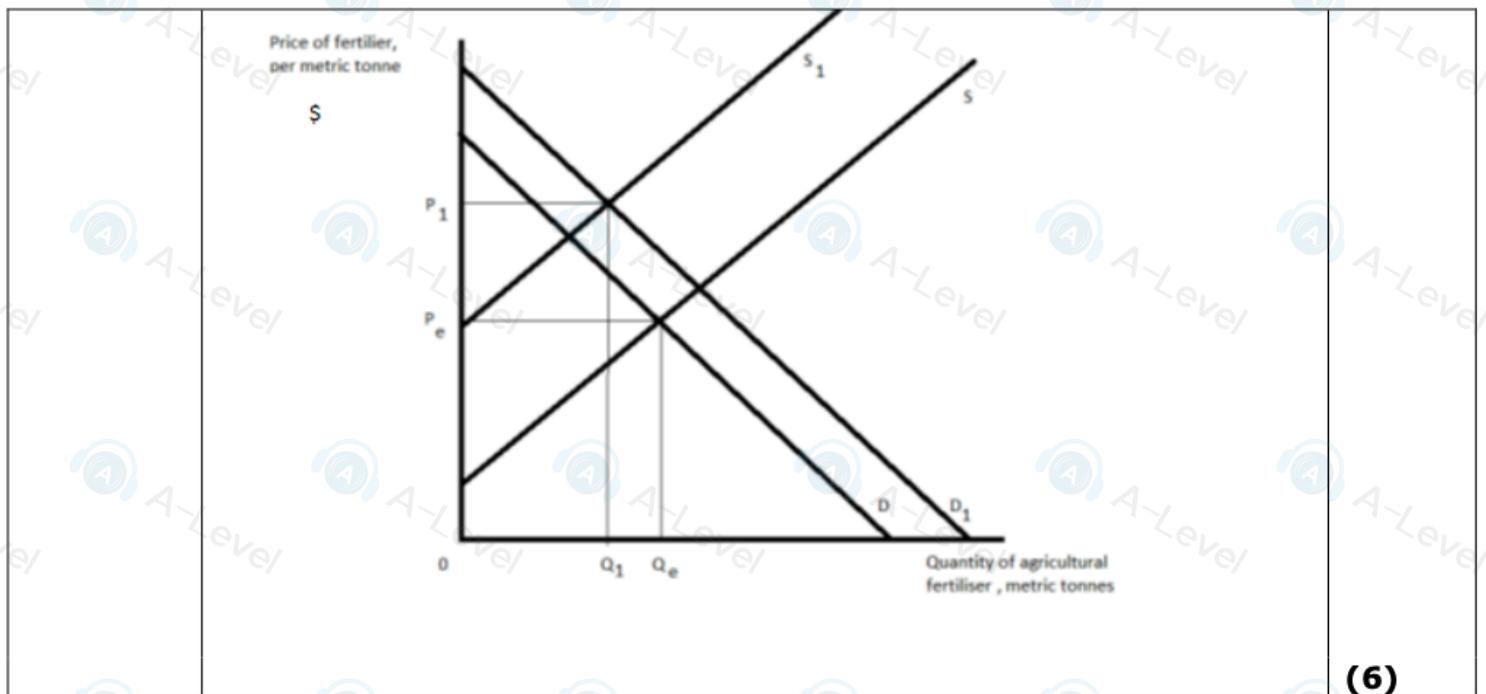


Question	Define the term 'tradeable pollution permit scheme.' (Extract B, line 16)	Mark
12 (a)	<p>Answer</p> <p>Knowledge 2</p> <p>Up to 2 marks for defining 'tradeable pollution permit scheme.' e.g.:</p> <ul style="list-style-type: none"> • Where firms are permitted/allowed to pollute up to a certain level (1) • Any excess permits can be sold/firms can buy additional permits when needed (1) • Fertiliser manufacturers are part of the European Union's tradeable pollution permit scheme (1) 	(2)

Question	With reference to Extract B, explain whether the supply of phosphate rock is likely to be price elastic or price inelastic.	Mark
12 (b)	<p>Answer</p> <p>QS8: Make calculations of elasticity and interpret the result. QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms.</p> <p>Knowledge 2 Application 2</p> <p>Knowledge</p> <p>1 mark for identifying the correct price elasticity:</p> <ul style="list-style-type: none"> • Supply is price inelastic (1) <p>1 mark for understanding price inelastic supply</p> <ul style="list-style-type: none"> • A change in price results in a less than proportionate change in quantity supplied/ • The PES is between 0 and 1/ • Diagram showing inelastic supply/ • Cannot respond quickly/in the short run/difficult to respond to changes in price (1) <p>Application</p> <p>Up to 2 marks for application:</p> <ul style="list-style-type: none"> • 85% of the world supply comes from just five countries (1) • Morocco produces 70% of total production (1) • It is a finite resource/limited in supply (1) 	(4)

Question	With reference to Figure 1 and Extract A, analyse one demand factor <i>and</i> one supply factor that caused the price of fertiliser to increase between January 2021 and April 2022. Illustrate your answer with a supply and demand diagram. Answer	Mark
12 (c)	<p>Knowledge 2, Application 2, Analysis 2</p> <p>Quantitative skills assessed: QS4: Construct and interpret a range of standard graphical forms QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms.</p> <p>Knowledge</p> <p>Up to 2 marks for the diagram showing:</p> <ul style="list-style-type: none"> • Original supply, demand and equilibrium price and quantity (1) • New equilibrium price and quantity having correctly shifted both supply and demand (1) <p>Analysis</p> <p>1 mark for demand factor e.g.:</p> <ul style="list-style-type: none"> • Demand for fertiliser increased by 6.3%/ • Governments paying subsidies to farmers during the global health crisis/ • Higher crop prices in 2021 provided an incentive for farmers to increase the quantity of crops that they grew (1) <p>1 mark for supply factor e.g.:</p> <ul style="list-style-type: none"> • Poor weather caused some factories that manufacture fertiliser to shut down/ • Winter storms and Hurricane Ida disrupted production in the USA/ • Costs of production also rose as a result of a significant increase in the world price of gas (1) <p>Application</p> <p>Up to 2 marks for diagram or reference to Figure 2.:</p> <ul style="list-style-type: none"> • Shift demand to the right (1) • Shift supply to the left (1) • January 2021 price per tonne was just above \$400 increasing to approximately \$950 in April 2022 (1) 	



(6)

Question	With reference to Extract C, examine two likely effects of the subsidies paid by Canada's Government to farmers who use more organic farming methods.	Mark
12(d)	<p>Answer</p> <p>QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms Knowledge 2, Application 2, Analysis 2, Evaluation 2 Knowledge and Analysis Up to 2 marks for identifying two effects and up to 2 marks for linked explanations, e.g.:</p> <ul style="list-style-type: none"> • The subsidy should reduce farmers' reliance on fertiliser (1K) helping reduce the environmental damage (1AN) • Farmers will research new production methods (1K) that will use less fertiliser to help reduce carbon emissions (1AN) • Farmers will be encouraged to adopt more organic production methods (1K) as the subsidy reduces costs of production of these methods (1AN) • Output may fall (1K) as fertiliser use is discouraged (1AN) • Increased organic output (1K) may result in increased employment in the sector (1AN) • Job losses in the fertiliser industry (1K) as the quantity of fertiliser consumed falls (1AN) • Reduces use of fertiliser (1K) helping to reduce external costs (1AN) • Lower organic food prices (1K) will result in increased consumer surplus (1AN) • Two marks for diagram showing the correct shift in supply (1K) and the impact of the subsidy on equilibrium price/quantity (1AN) <p>Application Up to 2 marks for application to Extract C</p> <ul style="list-style-type: none"> • Fertilisers have accounted for 10% of Canada's greenhouse gas emissions since 1990 (1AP) • To reach its 2030 greenhouse gas emissions target it needs to reduce its fertiliser use (1AP) • CA\$ 750 million to farmers over ten years to use more organic farming methods to achieve this target (1AP) <p>Evaluation Up to 2 marks for evaluative comments (2+0 or 1+1), e.g.:</p> <ul style="list-style-type: none"> • CA\$ 750m subsidy may be too small to have a substantial impact on changing farmers' behaviour (1+1) • Subsidies will have an opportunity cost as the funds cannot be used to pay for e.g. healthcare or education (1+1) • Farmers may become dependent on the subsidies resulting in a need to pay them for a long time (1+1) 	(8)

Question	With reference to Extract B, discuss the external costs associated with the production and the use of fertiliser. Illustrate your answer with an appropriate diagram. Indicative content
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12(e)	<p>Indicative content guidance</p> <p>Answers must be credited by using the level descriptors (below) in line with the general marking guidance.</p> <p>The indicative content below exemplifies some of the points that candidates may make but this does not imply that any of these must be included. Other relevant points must also be credited.</p> <p>Quantitative skills assessed</p> <p>QS4: Construct and interpret a range of standard graphical forms</p> <p>QS9: Interpret, apply and analyse information in written, graphical, tabular and numerical forms.</p> <p>Knowledge, Application and Analysis (8 marks) – indicative content</p> <ul style="list-style-type: none"> External costs- negative impact on third parties Between 1960 and 2019 there was a ten-fold increase in the use of fertiliser The production of fertiliser requires substantial use of non-renewable resources such as gas and coal. It is responsible for 1% of all global energy use and 1.4% of all carbon emissions - this leads to the greenhouse effect and global warming- increasing the risk of flooding/droughts so affecting income of farmers Fertiliser is produced by applying acids to phosphate rock - these acids may leak into the environment causing illness and additional health costs The fertilisers that are used on farmland are often washed into rivers and lakes. This causes algae to develop and oxygen levels to decrease, resulting in a decline in fish stocks - impacting those in the fishing industry who will find it more difficult to find fish <div data-bbox="279 1265 1109 1892" style="text-align: center;"> </div> <ul style="list-style-type: none"> Diagram showing MSC above MPC Q_{me} above Q_{so} shows overproduction P_{me} below P_{so} shows price paid is below social optimum Welfare loss triangle due to third party impacts 				
G	<table border="1" style="width: 100%;"> <thead> <tr> <th style="width: 15%;">Mark</th> <th style="width: 85%;">Descriptor</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">0</td> <td>No rewardable material</td> </tr> </tbody> </table>	Mark	Descriptor	0	No rewardable material
Mark	Descriptor				
0	No rewardable material				

Level 1	1–3	Displays isolated, superficial or imprecise knowledge and understanding of economic terms, principles, concepts, theories and models. Use of generic material or irrelevant information or inappropriate examples. Descriptive approach, which has no chains of reasoning.
Level 2	4–6	Displays elements of knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to apply knowledge and understanding to some elements of the question. Some evidence and contextual references are evident in the answer. Chains of reasoning in terms of cause and/or consequence are evident but they may not be developed fully or some stages are omitted.
Level 3	7–8	Demonstrates accurate and precise knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to link knowledge and understanding in context using relevant examples which are fully integrated to address the broad elements of the question. Analysis is clear, coherent, relevant and focused. The answer demonstrates logical and multi-stage chains of reasoning in terms of cause and/or consequence.

Evaluation (6 marks) – indicative content

- Magnitude- a wide range of significant external costs
- 1.4% of total carbon emissions- small relative to other sectors/a significant impact
- Fertiliser use has helped increase crop production four-fold- increasing revenues for crop growers and manufacturers
- Fertiliser production results in external benefits in terms of increased food supply and employment opportunities
- Difficult to measure the size/value of external costs
- Production of phosphate rock is focused mainly in 5 countries with 70% produced in Morocco so the external costs will be concentrated in these countries
- Crop production using fertiliser is used by farmers globally and therefore has a global impact
- The European Union’s tradeable pollution permit scheme applies to fertiliser manufacturers – if the EU reduces the number of permits available this will reduce production of fertiliser and its associated external costs

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–2	Identification of generic evaluative comments. No supporting evidence/reference to context. No evidence of a logical chain of reasoning.
Level 2	3–4	Evidence of evaluation of alternative approaches. Some supporting evidence/reference to context. Evaluation is supported by a partially-developed chain of reasoning.
Level 3	5–6	Evaluation recognises different viewpoints and/or is critical of the evidence. Appropriate reference to evidence/context. Evaluation is supported by a logical chain of reasoning.