1.27 Tradable Pollution Permits, Regulation and Government Failure: Test Pack

AQA 7136 · Calculators not allowed · about 20 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer all questions. Write full sentences for the levels-marked questions only. No calculator is required. Time guidance: approximately 20 minutes.

1 Multiple choice, UK factory emissions context: a firm holds tradable pollution permits and can either buy permits at £30 per tonne or abate at marginal cost £18 per tonne. Which action minimises the firm's cost for an additional tonne of emissions?

- ☐ A: Buy a permit at £30
- ☐ B: Abate at marginal cost £18
- ☐ C: Do nothing, continue emitting without a permit
- ☐ D: Lobby the regulator to raise the cap

(Total for Question 1 is 1 mark)

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2 A small UK firm emits 1 200 tonnes CO2 per year. Under a cap-and-trade scheme the permit price is £25 per tonne. The firm can reduce emissions by 200 tonnes at total abatement cost £3 000. Calculate the cost to the firm of meeting the reduction by: a) buying permits for the 200 tonnes, and b) carrying out the abatement itself. Which option is cheaper and by how much?

(Total for Question 2 is 4 marks)

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3 Explain how a command-and-control regulation that sets a maximum emission limit per firm can reduce pollution, using an example such as limits on sulphur dioxide emissions from power stations in the UK.

(Total for Question 3 is 3 marks)

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4 Define administrative cost as a cause of government failure in the delivery of environmental policy in the UK.

(Total for Question 4 is 2 marks)

5 Explain how imperfect information facing policymakers can lead to government failure when designing pollution control, giving a UK-style example.

(Total for Question 5 is 3 marks)

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Mark scheme · 1.27 Tradable Pollution Permits, Regulation and Government Failure: Test Pack

Question 1

B, abate at £18, because it is cheaper than buying a permit at £30 **B1**

Answer: B

Question 2

cost of buying permits = 200 x 25 **M1**

= £5,000 **A1**

cost of abatement = £3,000 (given) **M1**

abating is cheaper by £2,000 **A1**

Answer: Buying permits costs £5,000; abatement costs £3 000. Abatement is cheaper by £2 000.

Question 3

identifies mechanism: regulator sets legal limit on emissions per firm **M1**

explains that firms must install abatement technology or change processes to comply, causing emissions to fall **A1**

gives concrete example, e.g. power stations installing desulphurisation equipment to meet SO2 caps **B1**

Answer: A legal maximum forces firms to reduce emissions by installing abatement technology or changing production, for example power stations installing flue gas desulphurisation to meet SO2 limits.

Question 4

administrative cost is the resource cost of implementing, monitoring and enforcing a policy, including staff, compliance checks and legal processes **B1**

high administrative costs can make policies inefficient or reduce funds available for direct benefits **B1**

Answer: The resource cost of designing, monitoring and enforcing policy, which if high can make intervention inefficient and reduce net benefits.

Question 5

identifies imperfect information problem, e.g. regulator cannot precisely observe firms' marginal abatement costs or true emissions **M1**

explains consequence: wrong permit cap or price, or poorly targeted regulation, leading to either excessive cost or insufficient abatement **A1**

gives example, e.g. cap set too tight raising permit prices excessively and harming competitiveness, or too loose giving little environmental benefit **B1**

Answer: If regulators lack accurate data on abatement costs or emissions, they may set caps or standards poorly, causing excessive costs or weak environmental outcomes, for example an overly tight cap that spikes permit prices and damages industry competitiveness.

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