IGCSE ECONOMICS · 2.1 GOVERNMENT AND THE ECONOMY · CHAPTER 29 · PAPER 2

Protection of the Environment

Topic question sheet L29 | **Total: 30 marks** | **Time: 35 minutes** | **Student Book pp. 228–239**

Instructions: answer **all** questions. Write your answers on lined paper. The marks for each question are shown in brackets: use them as a guide to how much to write.

Calculators may be used. Show your working. Draw diagrams in pencil and label them fully. The mark scheme starts on a new page: do not look at it until you have finished.

Section A: Multiple choice

One mark each. Choose **one** answer: A, B, C or D.

1 Which of the following tax changes is most likely to help protect the environment? **(1)**

A A decrease in income tax
B An increase in income tax
C An increase in carbon tax
D A decrease in duty on petrol

2 Which is an example of visual pollution caused by business? **(1)**

A An advertising hoarding
B Cattle grazing
C A rainforest
D Coastal mist

3 A firm that cuts its emissions sells its spare rights to pollute to another firm. This is: **(1)**

A a subsidy
B a tradable pollution permit
C a fine
D compensation

4 Fertiliser washed into rivers that kills fish is an example of: **(1)**

A noise pollution
B visual pollution
C water pollution
D air pollution

Section B: Short answers

Define, state, calculate, draw and explain. Show your working for calculations.

5 Define **water pollution**. **(1)**

6 The power station emits 200 000 tonnes of CO_2 a year. Calculate its annual tax bill under the proposed carbon tax. You are advised to show your working. **(2)**

7 State **two** types of pollution shown in the extract. **(2)**

8 Explain how a fine can reduce pollution. **(3)**

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Section C: Data response

Read the extract, then answer the questions. Use evidence from the extract in every answer.

Extract: Pollution in Ostrava Bay

In the fictional town of Ostrava Bay, a coal-fired power station and a chemical plant employ 2500 people. Air pollution is three times the WHO recommended level, and asthma cases have risen 40% in five years. Fish stocks in the bay have fallen by half.

The government is considering two options: a tax of US$30 per tonne of CO_2 emitted, or a system of tradable pollution permits that would cut total emissions by 25% over five years. The power station says a tax would force it to raise electricity prices.

Fictional case, written for this sheet.

9 With reference to the extract, analyse how a carbon tax could reduce air pollution in Ostrava Bay. **(6)**

10 With reference to the extract, evaluate whether the government should choose the carbon tax or tradable pollution permits. **(12)**

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Mark scheme: Protection of the Environment

How to mark: Multiple choice, Define, State: 1 mark. **What is meant by** (2): two separate parts to the definition. **Calculate**: working and answer (with units). **Draw** (3): one mark per correct labelled feature. **Explain** (3): 1 for a point, 2 for developing it in context. **Analyse** (6): knowledge 2, application 2, analysis 2. **Assess** (9) and **Evaluate** (12) are marked by levels: choose the level that best fits the whole answer. Indicative content is a guide: credit other valid points.

Section A

1 *Which of the following tax changes is most likely to help protect the environment? (1 mark)*

Answer: C (An increase in carbon tax). Makes fossil fuels dearer.

2 *Which is an example of visual pollution caused by business? (1 mark)*

Answer: A (An advertising hoarding). Unattractive physical sight.

3 *A firm that cuts its emissions sells its spare rights to pollute to another firm. This is: (1 mark)*

Answer: B (a tradable pollution permit). Permits are tradable.

4 *Fertiliser washed into rivers that kills fish is an example of: (1 mark)*

Answer: C (water pollution). Contamination of waterways.

Section B

5 *Define water pollution. (1 mark)*

The contamination of oceans, rivers, lakes, groundwater and other bodies of water by harmful substances (1).

6 *The power station emits 200 000 tonnes of CO_2 a year. Calculate its annual tax bill under the proposed carbon tax. You are advised to show your working. (2 marks)*

Working: 200 000 × US$30 (1).

Answer: US$6 000 000 / US$6m (1).

7 *State two types of pollution shown in the extract. (2 marks)*

Air pollution: three times WHO level (1).

Water pollution: fish stocks halved (1).

8 *Explain how a fine can reduce pollution. (3 marks)*

Point: a fine is a penalty for breaking environmental laws (1).

Development: it reduces profits (1), so firms have an incentive to comply and cut pollution (1).

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Section C

9 *With reference to the extract, analyse how a carbon tax could reduce air pollution in Ostrava Bay. (6 marks · K2 · Ap2 · An2)*

Knowledge (2): tax raises the cost of polluting; polluter pays.

Application (2): US$30 per tonne; power station would face higher costs.

Analysis (2): incentive to switch to cleaner fuels/technology; higher electricity prices cut demand, so less output and fewer emissions; asthma could fall.

Knowledge 2 · Application 2 · Analysis 2.

10 *With reference to the extract, evaluate whether the government should choose the carbon tax or tradable pollution permits. (12 marks · levels)*

Tax: raises revenue (US$6m+) to fund health/clean-up; clear price signal; but uncertain cut in emissions; firms pass cost on as higher prices.

Permits: guaranteed 25% cut; reward for cleaning up; but complex to monitor; firms may just buy permits; no revenue unless auctioned.

Judgement: permits give certainty about emissions, important given health damage; tax better if revenue needed; depends on jobs at risk (2500) and enforcement.

Levels: L1 1–3 · L2 4–6 · L3 7–9 · L4 10–12 (balanced, well-developed arguments using the data throughout, and a justified conclusion that answers the question).

Original practice questions written in the style of the Pearson Edexcel International GCSE Economics (4EC1) papers. This is not an official paper. Unless a source is given, the firms, countries and figures are fictional and made up for practice.

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