2.29 Climate Change and Atmospheric Pollutants: Test Pack

Total Marks

AQA 8464 · Calculator allowed · about 20 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Name one greenhouse gas produced by human activities that contributes to global warming.

(Total for Question 1 is 1 mark)

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2 Complete the sentence. The enhanced greenhouse effect is the increase in the Earth's average temperature caused by an increase in the concentration of gases that trap _____ in the atmosphere.

(a) Write the missing word. **(2)**

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(Total for Question 2 is 2 marks)

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3 State one major human activity that increases atmospheric carbon dioxide concentration.

(Total for Question 3 is 2 marks)

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4 Sulfur dioxide (SO_2) is an atmospheric pollutant formed when sulphur impurities in fuels are burned. Give two environmental problems caused by SO_2.

(Total for Question 4 is 3 marks)

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5 The global warming potential (GWP) of methane (CH_4) over 100 years is about 28 times that of CO_2. A farm emits 4.5 tonnes of CH_4 in a year. Calculate the CO_2-equivalent emissions from this methane in tonnes CO_2-e. Show your working.

(a) Calculate the CO_2-equivalent emissions from 4.5 tonnes CH_4. Use GWP = 28. **(3)**

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(Total for Question 5 is 3 marks)

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6 A factory releases 1500 kg of CO_2 per day. The company wants to report this as tonnes per year. Calculate the total annual CO_2 emissions in tonnes. Show working and state the unit.

(a) Convert 1500 kg per day to tonnes per year. **(4)**

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(Total for Question 6 is 4 marks)

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Mark scheme · 2.29 Climate Change and Atmospheric Pollutants: Test Pack

Question 1

one valid greenhouse gas: carbon dioxide or methane or nitrous oxide or fluorinated gases, cao **B1**

Answer: Carbon dioxide

Question 2

(a) heat cao **B1**

(a) accept thermal energy as an alternative wording **B1**

(a) Answer: heat

Question 3

burning fossil fuels (for example: coal, oil, gas) cao **B1**

an additional supporting detail, for example naming a use such as electricity generation or transport, oe **B1**

Answer: Burning fossil fuels for energy or transport

Question 4

acid rain formation (SO_2 leads to acid rain) or damage to buildings and statues, oe **B1**

harm to plant life or reduced crop yield, oe **B1**

respiratory health problems in humans or increased air pollution, oe **B1**

Answer: Any two of: acid rain that damages buildings, harm to plants and crops, respiratory health problems in people.

Question 5

(a) method: multiplies mass CH_4 by GWP (4.5 x 28) or shows equivalent calculation **M1**

(a) 126 tonnes CO_2-e cao **A1**

(a) unit given: tonnes CO_2-e **B1**

(a) Answer: 126 tonnes CO_2-e

Question 6

(a) method: converts kg to tonnes and multiplies by days per year or shows 1500 kg x 365 then divide by 1000 **M1**

(a) 547.5 tonnes cao **A1**

(a) working shown: 1500 x 365 = 547500 kg then 547500 / 1000 = 547.5 tonnes **B1**

(a) unit stated: tonnes or t **B1**

(a) Answer: 547.5 tonnes

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