

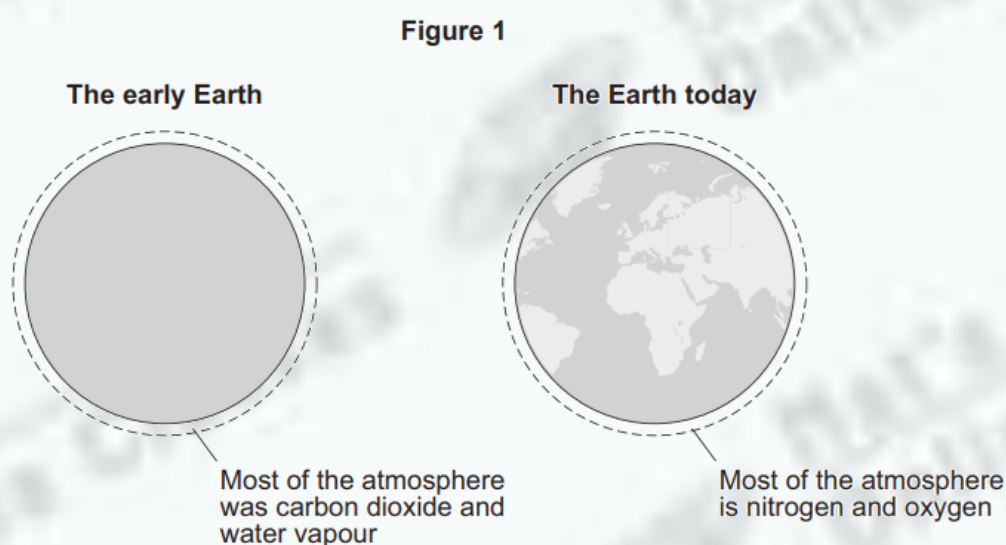
## Earth and atmosphere

Total mark – 19

### Question: 1

- 1 This question is about gases in the Earth's atmosphere.

**Figure 1** shows the atmospheres of the early Earth and of the Earth today.



- 1 (a) (i) Use the correct answers from the box to complete the sentence.

**[2 marks]**

dissolved	evaporated
locked up	released

The amount of carbon dioxide in the early Earth's atmosphere decreased because carbon dioxide was \_\_\_\_\_ in the oceans and gradually became \_\_\_\_\_ in sedimentary rocks as carbonates.

- 1 (a) (ii) Plants and algae used carbon dioxide and water vapour in the early Earth's atmosphere to produce oxygen.

Give the name of this process.

**[1 mark]**

\_\_\_\_\_

1 (b) The Earth's atmosphere today contains about 0.04% carbon dioxide.

1 (b) (i) Draw **one** line from each gas to the approximate percentage of gas in the Earth's atmosphere today.

[3 marks]

Gas	Approximate percentage of gas in the Earth's atmosphere today
	1
Argon	10
	20
Nitrogen	50
Oxygen	80
	90

1 (b) (ii) Give **one** reason why the amount of carbon dioxide in the Earth's atmosphere has increased in the last 50 years.

[1 mark]

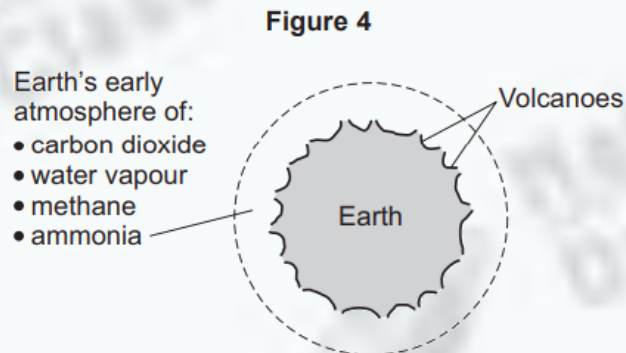
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Question	Answers	Extra information	Mark	AO / Spec. Ref.
1(a)(i)	dissolved locked up		1 1	AO1 1.7.2g;h
1(a)(ii)	photosynthesis		1	AO1 1.7.2f
1(b)(i)	argon - 1 nitrogen - 80 oxygen - 20	each mark is awarded for <u>one</u> line from each gas to the correct percentage	1 1 1	AO1 AO3 1.7.2a
1(b)(ii)	(burning) fossil fuels	allow deforestation <b>or</b> a description  allow (increase in) transport / factories  ignore more people <b>or</b> population (increase)	1	AO1 1.7.2i
<b>Total</b>			<b>7</b>	

## Question: 2

- 2 This question is about the Earth and its atmosphere.
- 2 (a) **Figure 4** shows the Earth and its atmosphere billions of years ago.



- 2 (a) (i) The boiling point of water is 100 °C.

Suggest **one** reason why there was no liquid water on the Earth's surface billions of years ago.

[1 mark]

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- 2 (a) (ii) Complete the sentence.

[1 mark]

On the Earth today, volcanic eruptions happen at the boundaries between tectonic \_\_\_\_\_.

**2 (b)** The Earth's atmosphere today contains nitrogen, oxygen, argon, carbon dioxide and other gases.

**2 (b) (i)** Draw **one** line from each substance to a description of the substance.

**[3 marks]**

Substance	Description of the substance
<input type="text" value="air"/>	<input type="text" value="compound"/>
<input type="text" value="carbon dioxide"/>	<input type="text" value="element"/>
<input type="text" value="argon"/>	<input type="text" value="hydrocarbon"/>
	<input type="text" value="metal"/>
	<input type="text" value="mixture"/>

**2 (b) (ii)** Which gas in the Earth's atmosphere is used when hydrocarbons burn?

**[1 mark]**

Tick (✓) **one** box.

carbon dioxide

☐

nitrogen

☐

oxygen

☐

**2 (b) (iii)** What percentage of the Earth's atmosphere is nitrogen?

**[1 mark]**

Tick (✓) **one** box.

about 40%

☐

about 60%

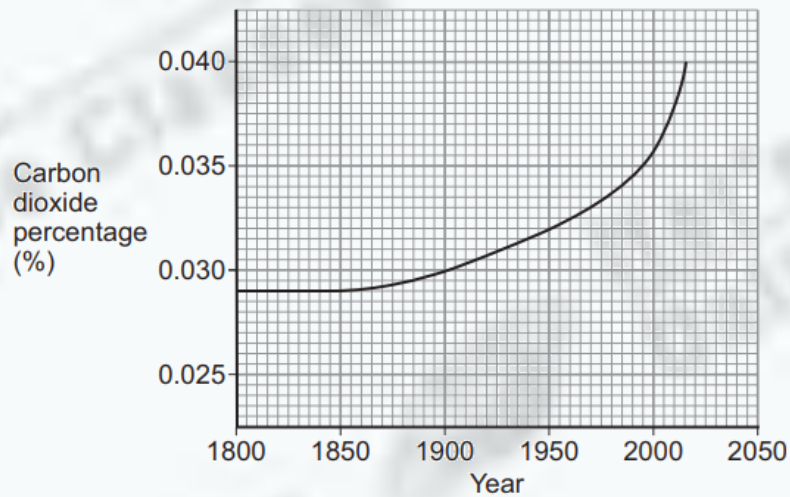
☐

about 80%

☐

- 2 (c) **Figure 5** shows the carbon dioxide percentage (%) in the Earth's atmosphere since the year 1800.

**Figure 5**



- 2 (c) (i) What was the carbon dioxide percentage in 1900?

[1 mark]

\_\_\_\_\_ %

- 2 (c) (ii) Describe, in detail, how the carbon dioxide percentage changed from 1900 to 2015.

[2 marks]

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### Question 2

Question	Answers	Extra information	Mark	AO / Spec. Ref.
2(a)(i)	the Earth's (surface) temperature was high <b>or</b> at/above 100 °C	allow the Earth's (surface) temperature was too/very hot <b>or</b> water evaporated/ boiled <b>or</b> turned to steam/gas  allow because of heat from volcanoes  ignore the Earth's (surface) was covered by volcanoes  ignore water turned to water vapour	1	AO3 1.7.2b
2(a)(ii)	plates	allow plate	1	AO1 1.7.1d
2(b)(i)	air _____ mixture carbon dioxide _____ compound argon _____ element	allow only one line from each substance	1 1 1	AO1 1.1.1a; 1.1.3a; 1.7.2a
2(b)(ii)	oxygen		1	AO1 1.4.3b
2(b)(iii)	about 80 %		1	AO1 1.7.2a

2(c)(i)	0.03(0) (%)		1	AO2 1.7.2 c
2(c)(ii)	increased slowly then rapidly	allow figures from graph to indicate increase	1 1	AO2 1.7.2i
2(c)(iii)	any <b>two</b> from: <ul style="list-style-type: none"> <li>• use of fossil fuels</li> <li>• deforestation</li> <li>• cars/transport</li> <li>• industry/factories</li> </ul>	ignore more people  allow less trees / plants	2	AO3 1.7.2i
<b>Total</b>			<b>12</b>	