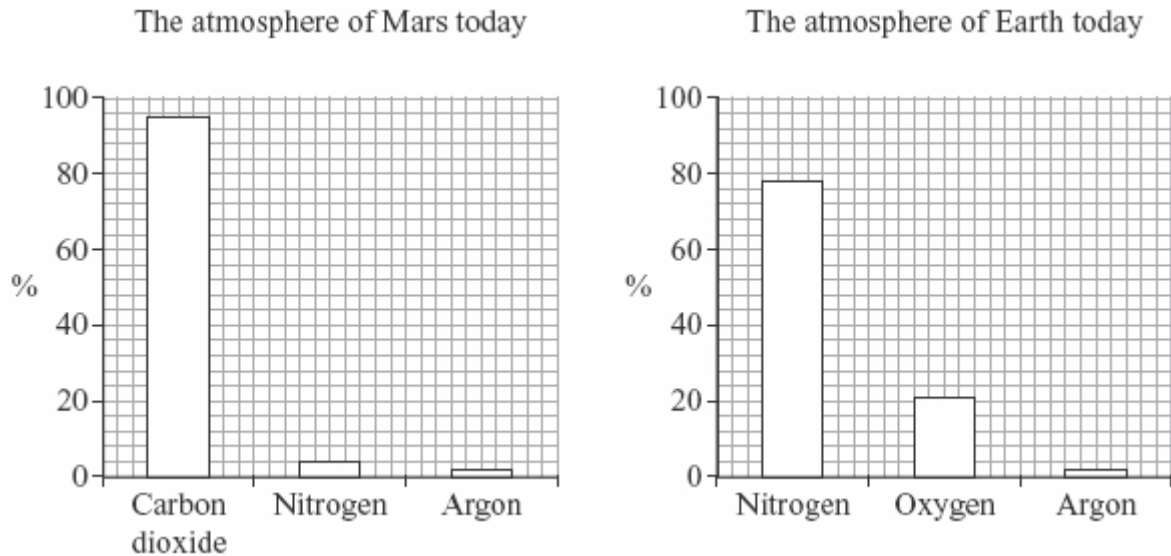


Changes in the Earth and its atmosphere

1 Some theories suggest that the Earth's early atmosphere was like the atmosphere of Mars today.

The bar charts show the three most common gases in each atmosphere today.



(a) Use the bar charts to complete the sentence by writing in the correct gases.

In the atmosphere of Mars today there is mainly and no

(2)

(b) Use the bar charts to complete the sentence by writing in the correct number.

These theories suggest that there was about % nitrogen in the Earth's early atmosphere.

(1)

(c) The atmosphere of the Earth today has much more nitrogen than in the early atmosphere. Denitrifying bacteria released most of this nitrogen into the atmosphere.

There are other differences between the Earth's early atmosphere and the atmosphere of the Earth today.

Use the bar charts to describe and explain **two** of these other differences.

.....

.....

.....

.....

.....

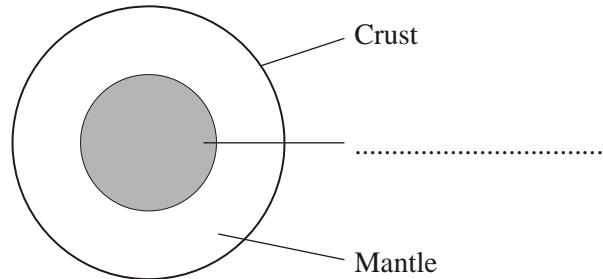
(3)
(Total 8 marks)

2. Earthquakes are common in certain places on Earth.

(a) The diagram shows the layered structure of the Earth.

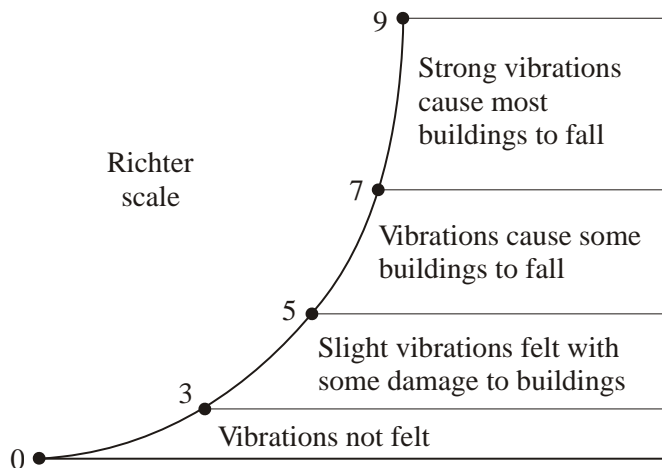
Choose one word from the box to complete the label on the diagram.

Atmosphere
Core
Plate

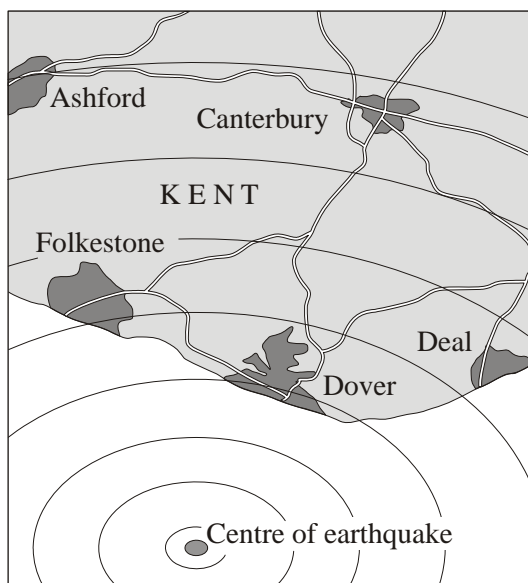


(1)

(b) In 1935 C.F. Richter designed a scale for comparing the size of earthquakes.



(c) A newspaper reported that an earthquake off the coast of Kent had caused plaster to come down from ceilings, house tiles to loosen and church bells to ring.

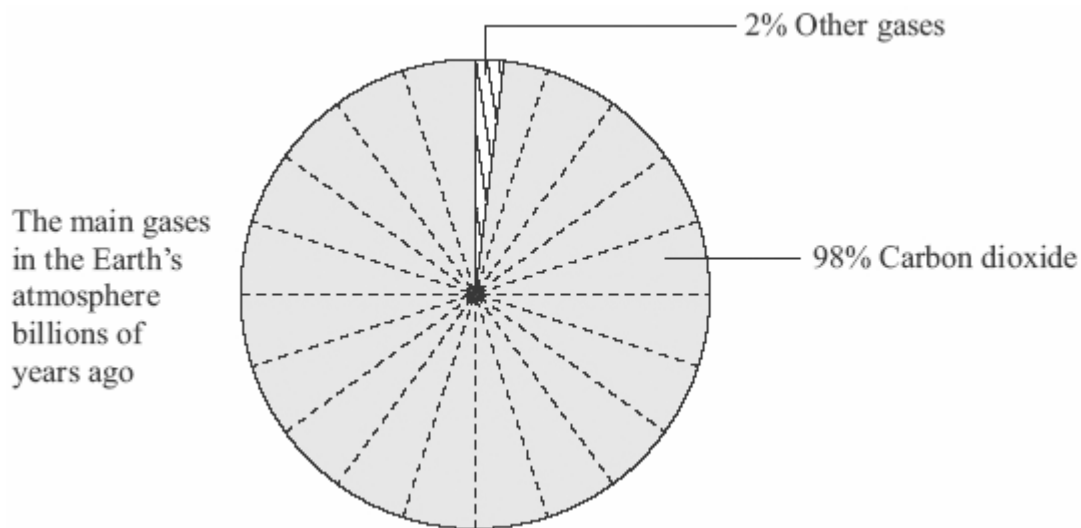


- (i) Earthquakes happen often in the UK.
Suggest why most of these earthquakes are **not** reported in the newspapers.
.....
.....
(1)
 - (ii) Draw a ring around the number which best shows the size of the earthquake in Kent.

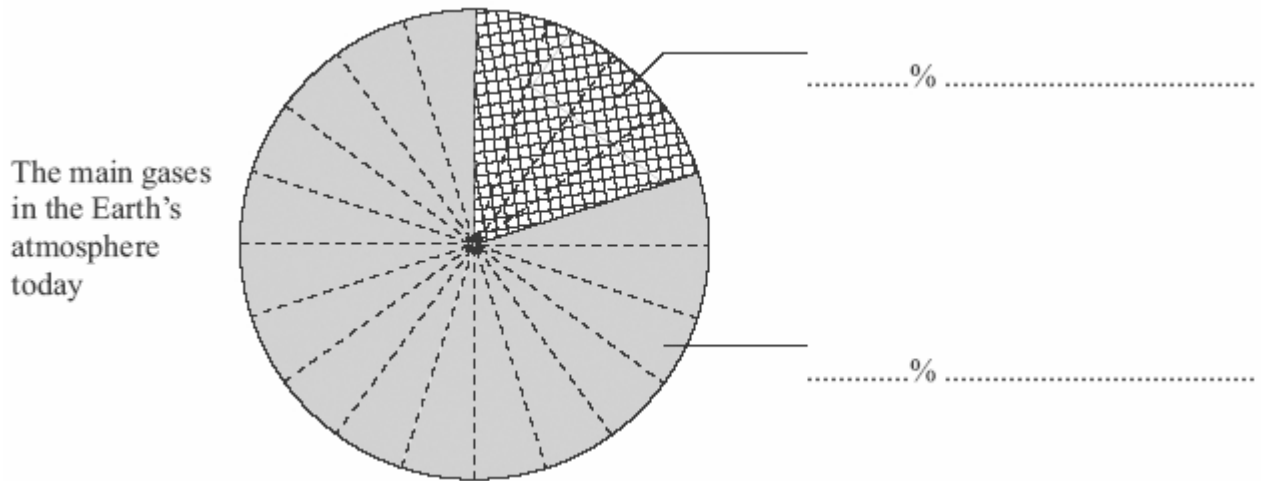
1 4 6 8

(1)
 - (iii) State what causes earthquakes.
.....
.....
(1)
 - (iv) Why were people living in Kent **not** warned about this earthquake?
.....
.....
(1)
- (Total 5 marks)**

3. Life on Earth would not exist without the atmosphere. Billions of years ago the composition of the Earth's atmosphere was very different from the composition today.



- (a) Label the pie chart below to show the percentages and names of the two main gases in the Earth's atmosphere today.



(2)

- (b) There is evidence that the composition of the Earth's atmosphere is still changing. One possible reason is that many power stations generate electricity by burning fossil fuels such as coal, oil or natural gas. Sulfur dioxide, SO₂, is produced when coal burns in air.

- (i) What environmental problem does sulfur dioxide cause?

.....

(1)

- (ii) How could this environmental problem be reduced in coal-fired power stations?

.....

(1)

- (iii) Gas-fired power stations burn methane, CH₄, in air.

Complete the word equation for this reaction.



(2)

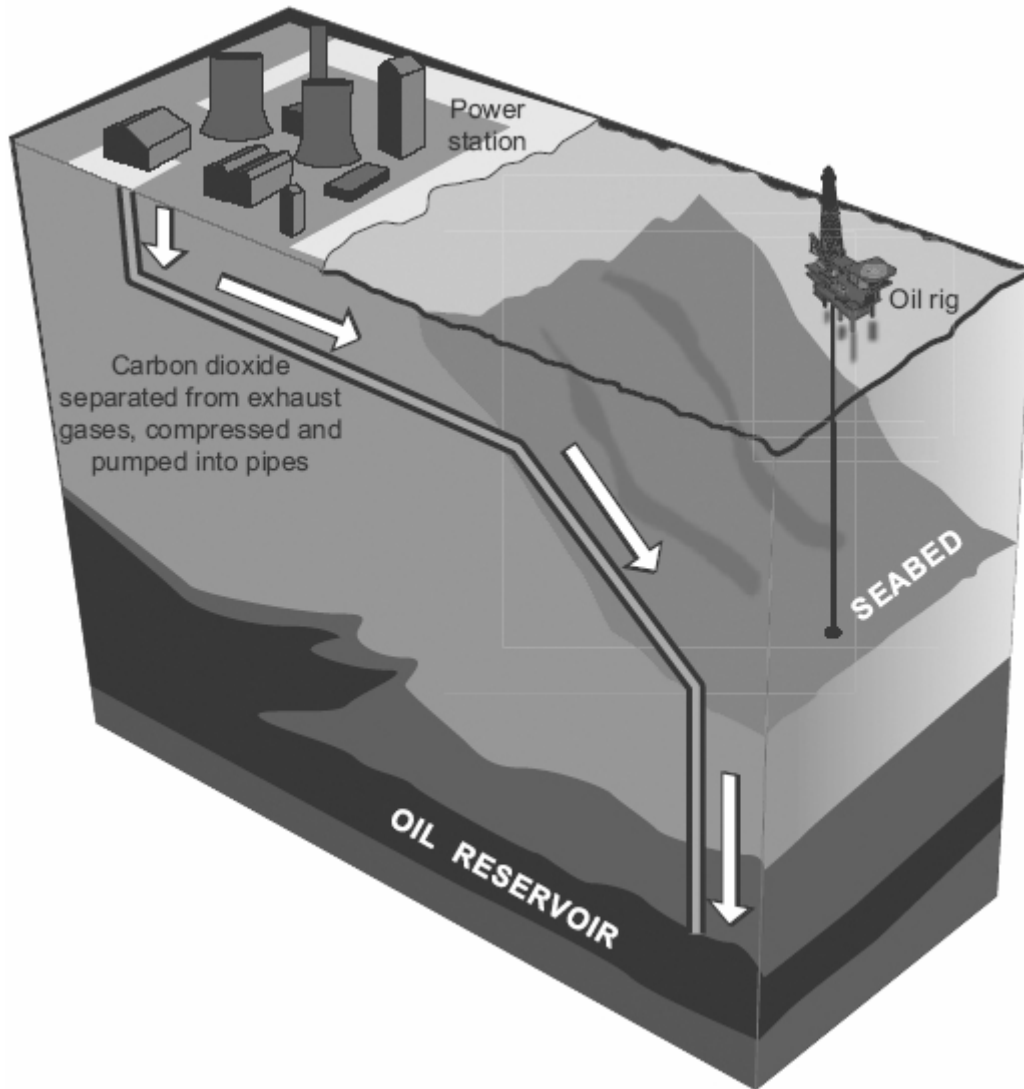
- (c) Excess carbon dioxide should be prevented from entering the atmosphere.

Explain why.

.....

(2)

- (d) Carbon dioxide is produced when fossil fuels burn in power stations. The diagram represents one idea to prevent excess carbon dioxide from entering the atmosphere.



Use the diagram to explain how carbon dioxide can be prevented from entering the atmosphere.

.....

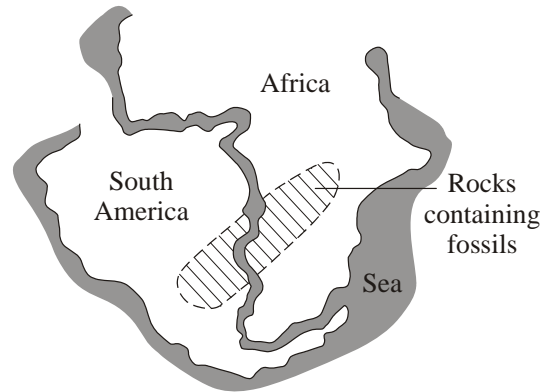
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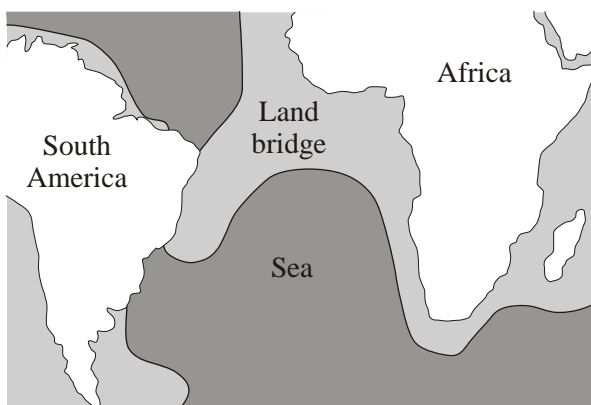
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(2)
(Total 10 marks)

4. A map of the world shows that the outline of South America looks as if it would fit into the west coast of Africa.
- Alfred Wegener in 1920 suggested his idea that the continents had been joined together but then slowly drifted apart.



- Other scientists in 1920 said that the continents were fixed on solid Earth and had been joined by a land bridge.



Modern South American animals are different from modern African animals.

Most fossils of animals found in South America and Africa are exactly the same.

- (a) Consider the information above.
- (i) What evidence gave Wegener the idea that the continents of South America and Africa had been joined?
-
-
- (1)
- (ii) Suggest **two** reasons why the other scientists in 1920 thought that Wegener was wrong.
- 1
-
- 2
-
- (2)

- (b) Complete the sentences by writing in the correct words.

Recent evidence has supported Wegener's idea.

The Earth's and the upper part of the mantle are now thought to be composed of tectonic plates.

Heat released by radioactive processes causes convection currents within the Earth's These convection currents cause the plates to move a few centimetres per

(3)
(Total 6 marks)