

Atmosphere and environment MCQs

- 1 Pollutant gases are released by the bacterial decay of vegetable matter.

The bacterial decay of vegetable matter is the main source of which gas?

- A carbon monoxide
- B methane
- C nitrogen dioxide
- D sulfur dioxide

- 2 Lakes contain a variety of dissolved substances.

Which substance is responsible for eutrophication in lakes?

- A metal compounds
- B nitrate fertilisers
- C oxygen
- D sulfuric acid

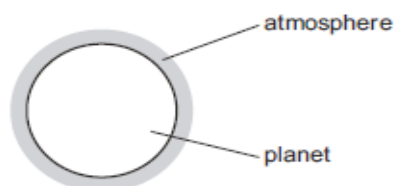
- 3 Several different treatments are used to purify the water supply.

Which impurities can be removed by which treatment?

	filtration	use of carbon	chlorination
A	harmful microbes	solids	unpleasant odours and tastes
B	harmful microbes	unpleasant odours and tastes	solids
C	solids	harmful microbes	unpleasant odours and tastes
D	solids	unpleasant odours and tastes	harmful microbes

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- 4 A new planet has been discovered and its atmosphere has been analysed.

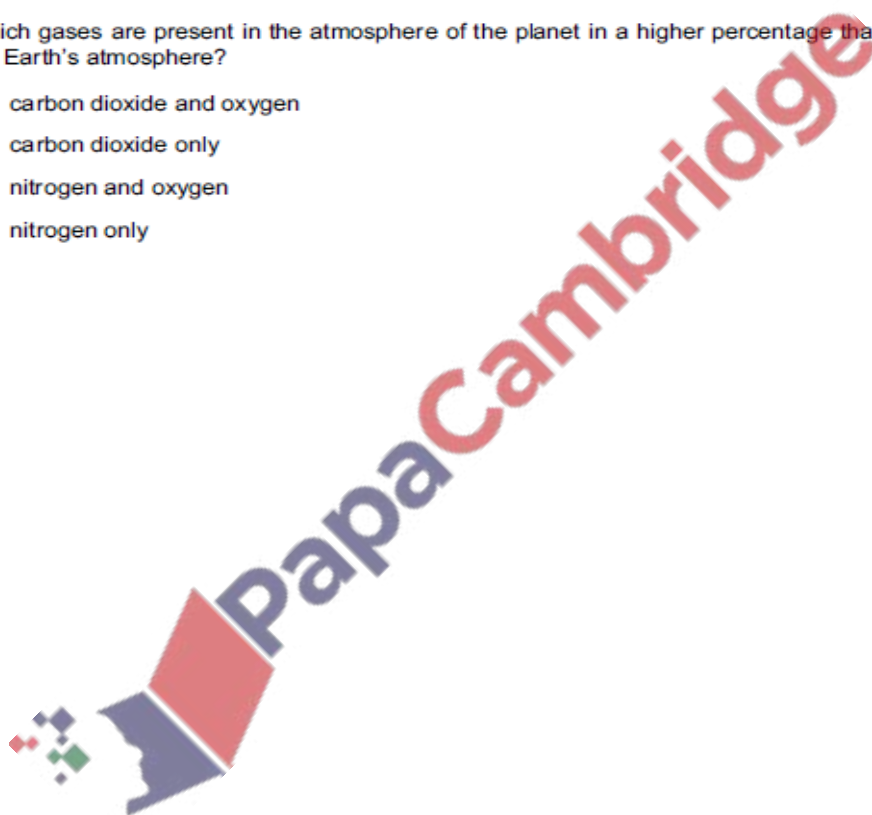


The table shows the composition of its atmosphere.

gas	percentage by volume
carbon dioxide	4
nitrogen	72
oxygen	24

Which gases are present in the atmosphere of the planet in a higher percentage than they are in the Earth's atmosphere?

- A carbon dioxide and oxygen
- B carbon dioxide only
- C nitrogen and oxygen
- D nitrogen only



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- 5 Sulfur dioxide, carbon monoxide and oxides of nitrogen are common gaseous pollutants found in the air.

Which pollutants contribute to acid rain?

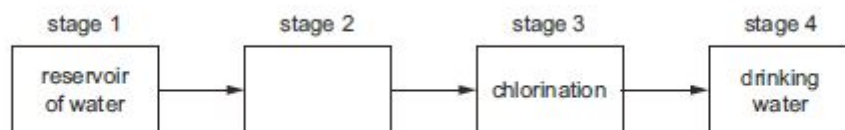
- A carbon monoxide and sulfur dioxide
 - B oxides of nitrogen and sulfur dioxide
 - C oxides of nitrogen only
 - D sulfur dioxide only
- 6 Which compound is **not** used as a fertiliser?
- A ammonium phosphate
 - B ammonium sulfate
 - C calcium carbonate
 - D potassium nitrate
- 7 Lime (calcium oxide) is used to treat waste water from a factory.
- Which substance is removed by the lime?
- A ammonia
 - B sodium chloride
 - C sodium hydroxide
 - D sulfuric acid



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- 8 The diagram shows how water is treated to make it suitable for drinking.



What happens in stage 2?

- A condensation
 - B sublimation
 - C evaporation
 - D filtration
- 9 A farmer treats a field with calcium hydroxide to make it less acidic.
- When the farmer adds ammonium nitrate fertiliser to the field immediately after the calcium hydroxide, they react.
- Why does this reaction make the fertiliser less effective?
- A It makes ammonia gas, so less nitrogen is absorbed by the soil.
 - B It makes an acid, making the soil acidic again.
 - C It makes nitrogen gas, so less nitrogen is absorbed by the soil.
 - D It makes the fertiliser too strong, stopping the plants growing so well.
- 10 Which row showing an air pollutant and its major source is **not** correct?

	pollutant	major source of pollutant
A	carbon monoxide	complete combustion of carbon fuels
B	lead compounds	leaded petrol
C	oxides of nitrogen	car engines
D	sulfur dioxide	fossil fuels containing sulfur

- 11 Methane and carbon dioxide are both greenhouse gases.

Which row identifies a source of methane and a source of carbon dioxide?

	source of methane	source of carbon dioxide
A	decomposition of vegetation	hydrogen car exhausts
B	digestion in animals	diesel car exhausts
C	petrol car exhausts	decomposition of vegetation
D	respiration	petrol car exhausts

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- 12 Which pair of gases are both non-acidic?
- A ammonia and methane
 - B carbon dioxide and ammonia
 - C methane and nitrogen dioxide
 - D nitrogen dioxide and carbon dioxide
- 13 Which term correctly describes the conversion of seawater into drinkable water?
- A chlorination
 - B desalination
 - C filtration
 - D neutralisation

- 14 Seawater is desalinated to make it drinkable.

What is the main substance removed by desalination?

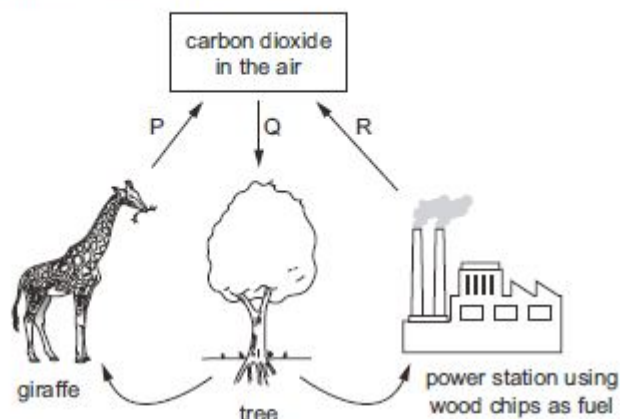
- A detergent
- B fertiliser
- C sewage
- D sodium chloride

- 15 Which row is correct for both carbon dioxide and methane?

	causes climate change	produced by burning fuels	produced by living organisms
A	✓	✓	✓
B	✓	✓	x
C	✓	x	✓
D	x	✓	✓

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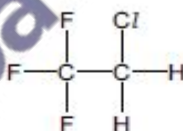
16 The diagram shows part of the carbon cycle.



What are processes P, Q and R?

	P	Q	R
A	combustion	photosynthesis	respiration
B	photosynthesis	combustion	respiration
C	respiration	combustion	photosynthesis
D	respiration	photosynthesis	combustion

17 CFC compounds were used as aerosol propellants. The structure of one CFC compound is shown.



Which element in this compound causes a depletion of ozone in the atmosphere?

- A carbon
- B chlorine
- C fluorine
- D hydrogen

18 What is removed or destroyed when water is desalinated to make it drinkable?

- A bad odours
- B harmful bacteria
- C sodium chloride
- D solid particles

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19 Dry air is a mixture of gases of which 99% is nitrogen and oxygen.

What is the main constituent of the remaining 1%?

- A argon
- B helium
- C hydrogen
- D water vapour

20 Why is chlorine added to the water supply?

- A Chlorine is used to desalinate the water.
- B Chlorine kills bacteria that may be present in the water.
- C Chlorine precipitates solids that may be present in the water.
- D Chlorine removes tastes and odours from the water.

21 A farmer spread ammonium nitrate, a nitrogenous fertiliser, on a field. The next day he spread calcium hydroxide on the same field. This caused a loss of nitrogen from the ammonium nitrate.

Which chemical reaction occurred?

- A The calcium ions reacted with the ammonium ions, producing ammonia gas.
- B The calcium ions reacted with the nitrate ions, producing oxides of nitrogen.
- C The hydroxide ions reacted with the ammonium ions, producing ammonia gas.
- D The hydroxide ions reacted with the nitrate ions, producing oxides of nitrogen.



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22 Which row correctly compares carbon dioxide and methane?

	both contain carbon	both are described as a greenhouse gas	both lower the pH of water when they dissolve in it
A	✓	x	✓
B	✓	✓	x
C	x	✓	✓
D	x	✓	x

23 Fossil fuels are used to power some internal combustion engines.

Which pollutants are produced by an internal combustion engine burning fossil fuels?

- 1 carbon monoxide
- 2 nitrogen oxides
- 3 sulfur dioxide

A 1, 2 and 3 B 1 and 2 only C 1 and 3 only D 2 and 3 only

24 Bottled fruit juice may have small amounts of sulfur dioxide added.

What is the purpose of this?

- A to adjust the acidity of the fruit juice
- B to kill any bacteria present
- C to improve the flavour of the fruit juice
- D to neutralise any alkalis present

25 Dissolved substances in water can cause eutrophication.

How many of the ions shown cause this effect?

Cl^- CO_3^{2-} Na^+ NO_3^- PO_4^{3-}

A 1 B 2 C 3 D 4

26 Which list contains only gases that are always present in unpolluted air?

- A oxygen, nitrogen, carbon dioxide, argon, carbon monoxide, nitrogen dioxide
- B oxygen, nitrogen, carbon dioxide, argon, neon
- C oxygen, nitrogen, carbon dioxide, nitrogen dioxide, ozone
- D oxygen, nitrogen, carbon monoxide, methane, sulfur dioxide

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- 27 The table shows treatments used for drinking water supplies and reasons for using those treatments.

Which row is correct?

	method of water treatment	reason
A	chlorination	removes tastes
B	desalination	removes solids
C	filtration	removes salt
D	use of carbon	removes odours

- 28 The table shows some atmospheric pollutants and their possible effects.

Which row is **not** correct?

	pollutant	effect
A	CFCs	cause depletion of the ozone layer
B	CO ₂	forms photochemical smog
C	CO	is poisonous to humans
D	NO ₂	forms acid rain

- 29 Which pollutant causes eutrophication in rivers?

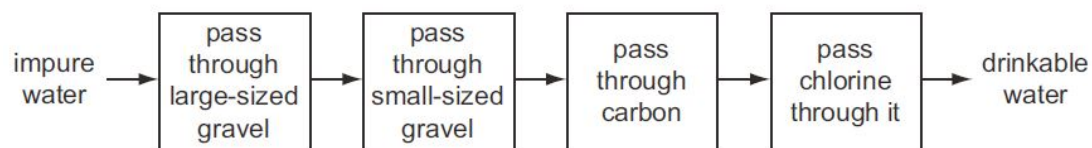
- A** acid rain
- B** carbon monoxide
- C** fertiliser
- D** metal compounds

- 30 Which ion is present in both sewage and fertilisers and can cause eutrophication when it enters rivers?

- A** carbonate
- B** chloride
- C** nitrate
- D** sulfate

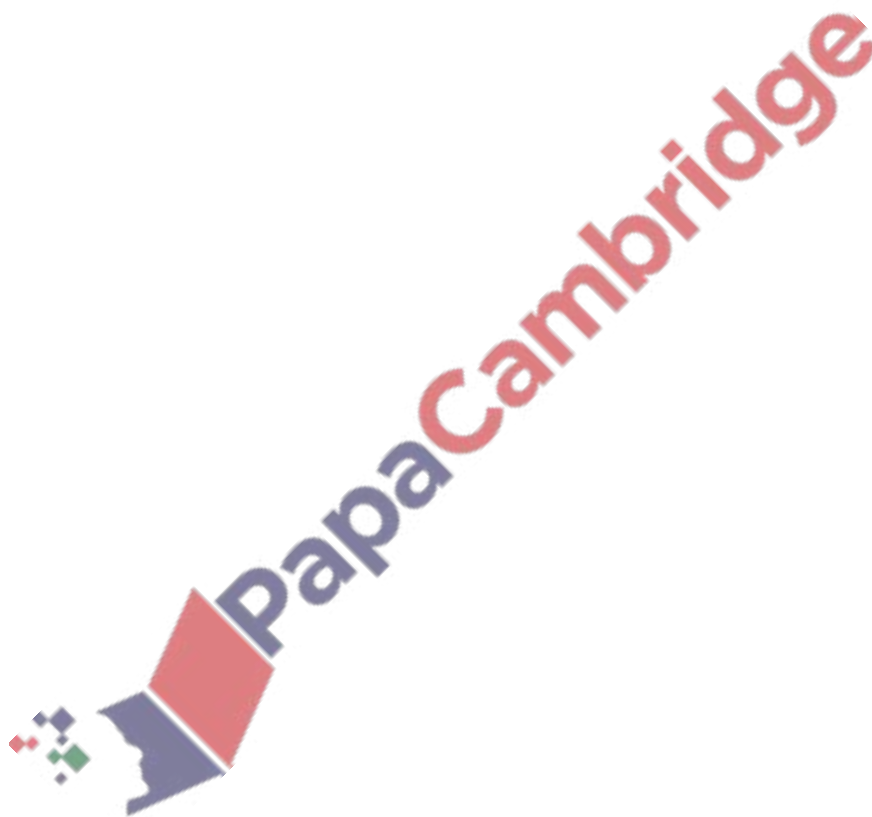
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31 The flow chart shows how impure water can be treated to produce drinkable water.



What is **not** removed from the water by this process?

- A clay particles
- B microbes
- C nitrates
- D odours



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Marking Scheme

1-B 25-B

2-B 26-B

3-D 27-D

4-A 28-B

5-B 29-C

6-C 30-C

7-D 31-C

8-D

9-A

10-A

11-D

12-A

13-B

14-D

15-C

16-D

17-B

18-C

19-C

20-C

21-C

22-B

23-A

24-B

