

# Air

## Question Paper 1

Level	IGCSE
Subject	Chemistry (0620/0971)
Exam Board	Cambridge International Examinations (CIE)
Topic	Air and Water
Sub-Topic	Air
Booklet	Question Paper 1

**Time Allowed:** 35 minutes

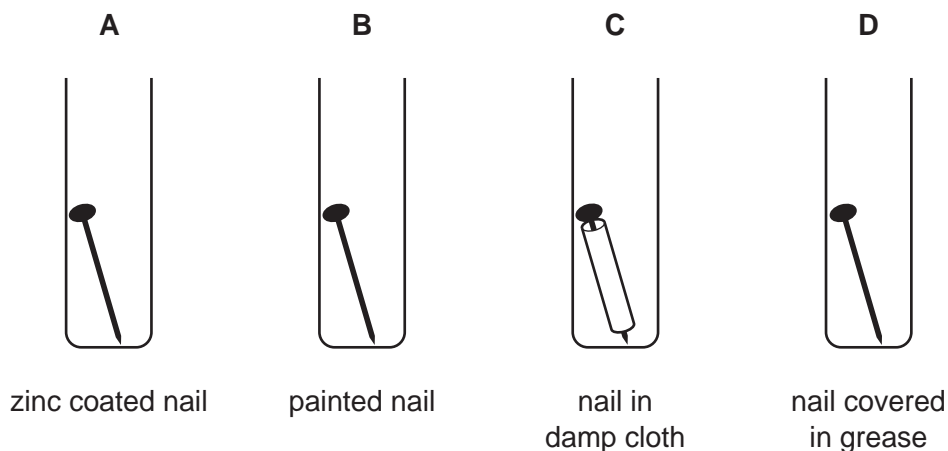
**Score:** /29

**Percentage:** /100

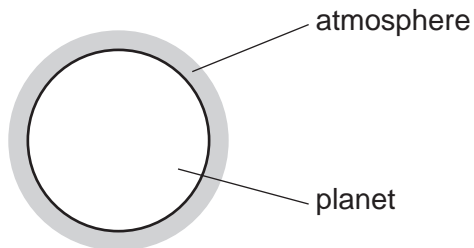
### Grade Boundaries:

9	8	7	6	5	4	3	2	1
>85%	75%	68%	60%	53%	48%	40%	33%	<25%

1. Which iron nail rusts?



2. A new planet has been discovered and its atmosphere has been analysed.



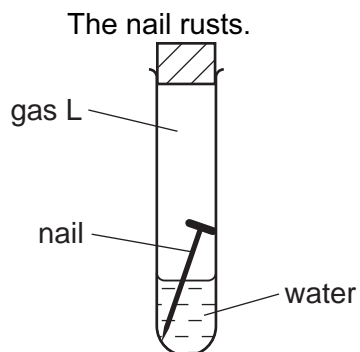
The table shows the composition of the atmosphere.

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

3. An iron nail is placed in a closed test-tube, containing gas L.



What is gas L?

- A** carbon dioxide
- B** hydrogen
- C** nitrogen
- D** oxygen

4. Which statements are correct?

- 1 Carbon monoxide is responsible for the production of 'acid rain'.
- 2 Oxides of nitrogen are present in car exhausts.
- 3 Sulfur dioxide can be produced by the combustion of fossil fuels.

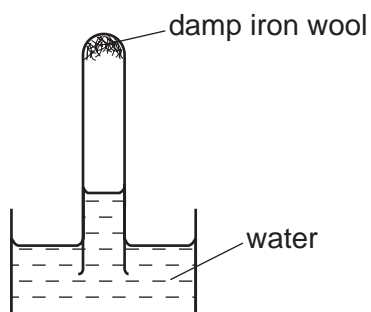
- A** 1 and 2 only
- B** 1 and 3 only
- C** 2 and 3 only
- D** 1, 2 and 3

5. Which pollutant, found in car exhaust fumes, does **not** come from the fuel?

- A carbon monoxide
- B hydrocarbons
- C lead compounds
- D nitrogen oxides

6. A test-tube containing damp iron wool is inverted in water.

After three days, the water level inside the test-tube has risen.



Which statement explains this rise?

- A Iron oxide has been formed.
- B Iron wool has been reduced.
- C Oxygen has been formed.
- D The temperature of the water has risen.

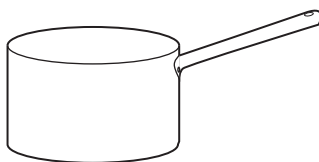
7. Which compound in polluted air can damage stonework and kill trees?

- A carbon dioxide
- B carbon monoxide
- C lead compounds
- D sulfur dioxide

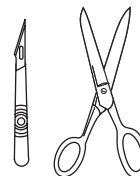
8. The diagram shows three types of item.



cutlery



cooking pan

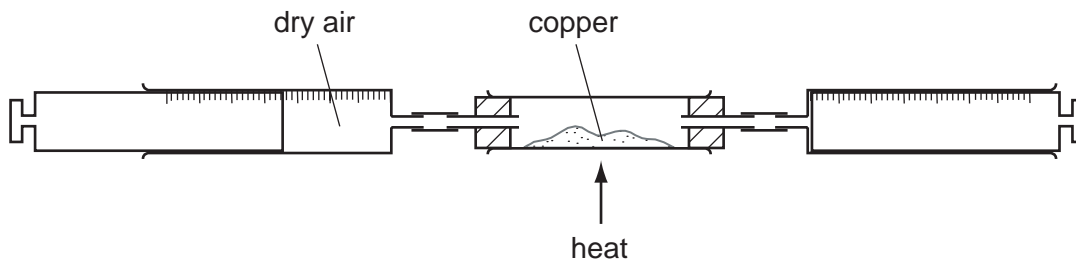


instruments used  
in hospitals

Which method of rust prevention can be used for all three types of item?

- A coating with plastic
- B covering with grease
- C galvanising
- D using stainless steel

9. Dry air is passed over hot copper until all the oxygen has reacted.



The volume of gas at the end of the reaction is  $120\text{ cm}^3$ .

What is the starting volume of dry air?

- A  $132\text{ cm}^3$
- B  $150\text{ cm}^3$
- C  $180\text{ cm}^3$
- D  $600\text{ cm}^3$

10. In which row is the air pollutant **not** correctly matched with its source?

	air pollutant	source
<b>A</b>	carbon monoxide	incomplete combustion of fuels
<b>B</b>	lead compounds	burning petrol in cars
<b>C</b>	nitrogen oxides	decomposing vegetation
<b>D</b>	sulfur dioxide	burning coal and other fossil fuels

11. Iron is a metal that rusts in the presence of oxygen and water.

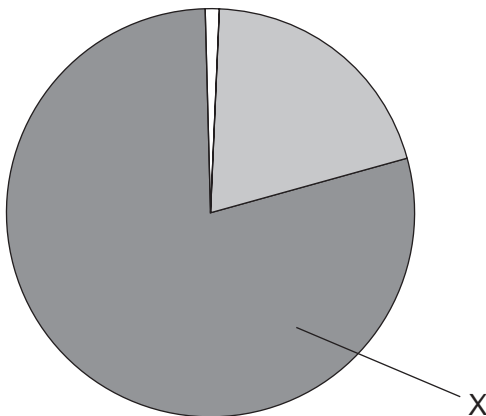
Mild steel is used for .....1..... and is prevented from rusting by .....2..... .

Stainless steel is prevented from rusting by .....3..... it with another metal.

Which words correctly complete gaps 1, 2 and 3?

	1	2	3
<b>A</b>	car bodies	greasing	covering
<b>B</b>	car bodies	painting	mixing
<b>C</b>	cutlery	greasing	covering
<b>D</b>	cutlery	painting	mixing

12. The diagram shows the composition by volume of air.



What is X?

- A** argon
  - B** carbon dioxide
  - C** nitrogen
  - D** oxygen
13. Statement 1: Alloying iron with other materials to form stainless steel prevents iron from rusting by excluding oxygen.
- Statement 2: Painting, oiling and electroplating are all methods of preventing iron from rusting.
- Which is correct?
- A** Both statements are correct and statement 2 explains statement 1.
  - B** Both statements are correct but statement 2 does not explain statement 1.
  - C** Statement 1 is correct but statement 2 is incorrect.
  - D** Statement 2 is correct but statement 1 is incorrect.

14. The table gives the composition of the atmosphere of four newly discovered planets.

planet	composition of atmosphere
W	argon, carbon dioxide and oxygen
X	argon, nitrogen and oxygen
Y	argon, carbon dioxide and methane
Z	methane, nitrogen and oxygen

On which planets is the greenhouse effect likely to occur?

- A W only
- B W, X and Z
- C W and Y only
- D W, Y and Z

15. A factory burns coal with a high sulfur content.

Which pollutant is **most** likely to lead to the death of trees?

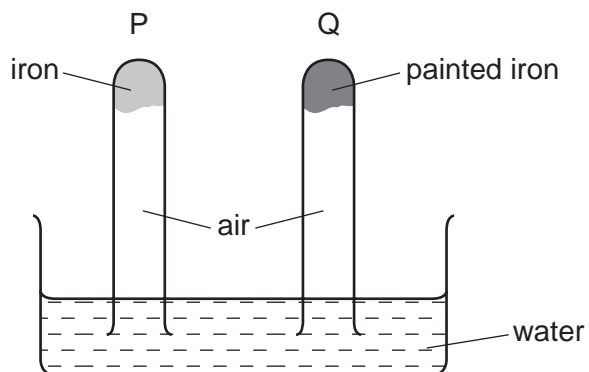
- A carbon dioxide
- B carbon monoxide
- C lead compounds
- D sulfur dioxide

16. What is the correct order of abundance of the gases in the air?

- A nitrogen → oxygen → argon → carbon dioxide
- B nitrogen → oxygen → carbon dioxide → argon
- C oxygen → nitrogen → argon → carbon dioxide
- D oxygen → nitrogen → carbon dioxide → argon



17. The diagram shows an experiment to investigate how paint affects the rusting of iron.



What happens to the water level in tubes P and Q?

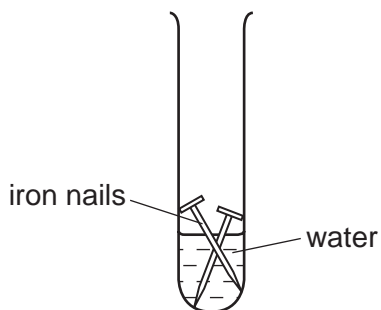
	tube P	tube Q
<b>A</b>	falls	rises
<b>B</b>	no change	rises
<b>C</b>	rises	falls
<b>D</b>	rises	no change

18. Argon is a noble gas used to fill light bulbs.

What is the approximate percentage of argon in air?

- A** 1%                      **B** 20%                      **C** 79%                      **D** 99%

19. The experiment shown was set up to investigate the rusting of iron.



Rusting occurs in this experiment because of the presence of

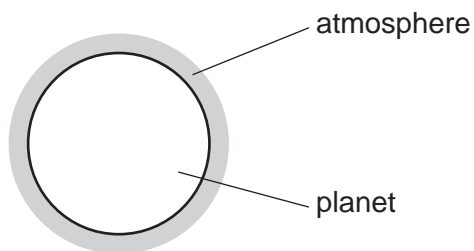
- A hydrogen and oxygen.
  - B nitrogen and oxygen.
  - C nitrogen and water.
  - D oxygen and water.
20. Coal is a fossil fuel.
- Which gas is **not** formed when coal burns?

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

21. Which is a use of oxygen?

- A filling balloons
- B filling light bulbs
- C food preservation
- D making steel

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23. Carbon monoxide is an air pollutant produced when petrol is burned in a car engine.

Why is carbon monoxide considered to be an air pollutant?

- A It causes global warming.
- B It causes the corrosion of buildings.
- C It is a greenhouse gas.
- D It is poisonous.

24. The diagrams show four uses of iron.

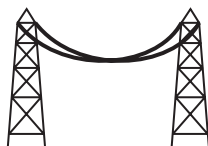
In which of these uses is the iron most likely to rust?

A



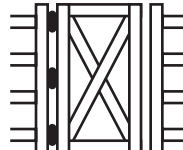
iron bucket  
electroplated  
with zinc

B



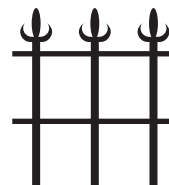
iron cored  
aluminium  
electricity cables

C



iron hinges  
on a gate

D



painted  
iron fence

25. Which air pollutant is **not** made when coal burns in a power station?

- A carbon monoxide
- B lead compounds
- C nitrogen oxides
- D sulfur dioxide

26. Iron rusts. This process involves the .....1..... of iron. Rusting can be prevented by covering the iron with grease or paint which stops .....2..... from reaching the surface of the iron.

Which words correctly complete gaps 1 and 2?

	1	2
<b>A</b>	oxidation	nitrogen
<b>B</b>	oxidation	oxygen
<b>C</b>	reduction	nitrogen
<b>D</b>	reduction	oxygen

27. Oxides of nitrogen are given out from car exhausts.

Which row best shows why oxides of nitrogen are unwanted?

	acidic	toxic
<b>A</b>	no	no
<b>B</b>	no	yes
<b>C</b>	yes	no
<b>D</b>	yes	yes

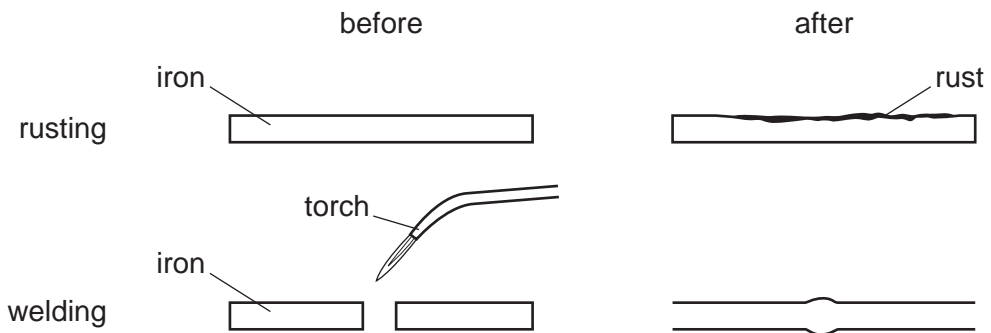
28. Iron rusts when it reacts with .....1.....

Rusting can be prevented by covering the iron with a more reactive metal, such as .....2.....

Which words correctly complete gaps 1 and 2?

	1	2
<b>A</b>	oxygen	copper
<b>B</b>	oxygen	magnesium
<b>C</b>	oxygen and water	copper
<b>D</b>	oxygen and water	magnesium

29. The diagrams show two processes.



For which processes is oxygen involved?

	rusting	welding
<b>A</b>	✓	✓
<b>B</b>	✓	x
<b>C</b>	x	✓
<b>D</b>	x	x