

## Air and Water – 2021 IGCSE 0620

1. **June/2021/Paper\_11/No.29**

Which two gases make up approximately 99% of clean, dry air?

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

2. **June/2021/Paper\_12/No.30**

Which substance is essential for iron nails to rust?

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

3. **June/2021/Paper\_12/No.32**

Which substance is a diatomic covalent molecule found in pure dry air?

- A argon
- B carbon dioxide
- C nitrogen
- D hydrogen

4. **June/2021/Paper\_13/No.27**

Water is removed from reservoirs and undergoes several stages of treatment to make it suitable for drinking.

Which statements about the stages are correct?

- 1 Chlorine is added to the water to kill harmful bacteria.
- 2 Water is heated to remove dissolved oxygen gas.
- 3 Water is filtered to remove solids.

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

5. **June/2021/Paper\_13&23/No.28,27**  
Which gas is an air pollutant that causes acid rain?
- A argon
  - B carbon monoxide
  - C methane
  - D nitrogen dioxide

6. **June/2021/Paper\_13/No.34**  
What is the main constituent of natural gas?
- A hydrogen
  - B methane
  - C nitrogen
  - D oxygen

7. **June/2021/Paper\_21/No.30**  
Which process removes carbon dioxide from the atmosphere?
- A combustion of fossil fuels
  - B fermentation
  - C photosynthesis
  - D respiration

8. **June/2021/Paper\_22/No.28**  
Mild steel consists mostly of iron. Mild steel can be prevented from rusting by a process called galvanising.

Copper is not a very strong metal. However, if it is mixed with a suitable metal a strong alloy called brass is produced.

Which statement is correct?

- A Copper corrodes very quickly when wet and brass does not.
- B Copper is mixed with zinc to produce brass.
- C Galvanising mild steel changes it from a pure metal into an alloy.
- D When a steel object is galvanised this means it is coated with a thin layer of tin.

9. June/2021/Paper\_22/No.29

Water is used for the irrigation of crops and for drinking water.

For which uses must water be chlorinated?

	irrigation	drinking
A	✓	✓
B	✓	x
C	x	✓
D	x	x

10. June/2021/Paper\_22/No.32

Which process in the carbon cycle is responsible for removing carbon dioxide from the atmosphere?

- A combustion
- B decomposition
- C photosynthesis
- D respiration

11. June/2021/Paper\_23/No.23

What are possible effects of an inadequate water supply during a drought?

- 1 crop failure
- 2 wastage of water
- 3 human disease
- 4 death of farm animals

- A 1, 2 and 3      B 1 and 2 only      C 1, 3 and 4      D 3 and 4 only

12. June/2021/Paper\_23/No.24

Which statement explains why galvanising prevents iron from rusting?

- A Zinc is more reactive than iron and corrodes in preference to iron.
- B Zinc is more reactive than iron and loses electrons less easily than iron.
- C Zinc is less reactive than iron and corrodes in preference to iron.
- D Zinc is less reactive than iron and loses electrons more easily than iron.

13. March/2021/Paper\_12/No.29

Which pollutants are responsible for the erosion of buildings and statues?

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

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

14. March/2021/Paper\_12/No.31

X is produced when petrol burns completely in air.

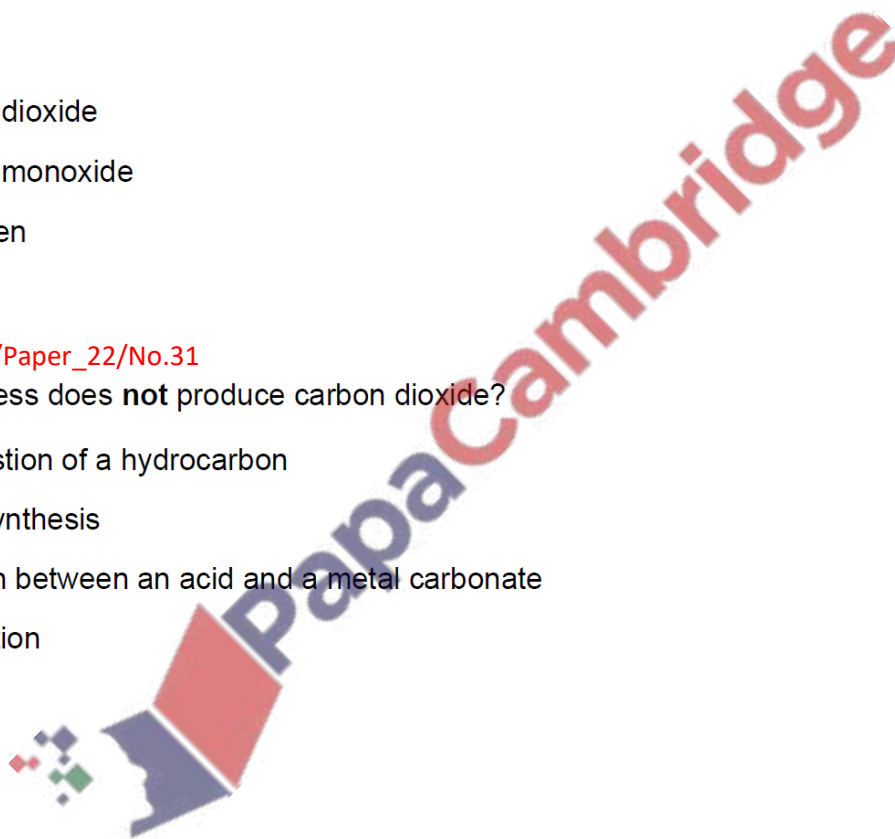
What is X?

- A argon
- B carbon dioxide
- C carbon monoxide
- D hydrogen

15. March/2021/Paper\_22/No.31

Which process does **not** produce carbon dioxide?

- A combustion of a hydrocarbon
- B photosynthesis
- C reaction between an acid and a metal carbonate
- D respiration



16. June/2021/Paper\_31/No.6

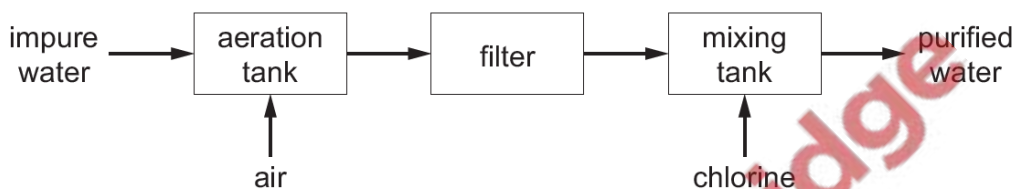
This question is about water.

(a) The water in rivers often contains pollutants such as acids.

Describe how universal indicator paper can be used to determine the pH value of the water.

.....  
.....  
..... [2]

(b) The diagram shows some of the stages in water treatment.



(i) Air is blown through the aeration tank.

Name the **two** gases that make up most of the air.

..... and ..... [2]

(ii) After aeration, the water still contains large insoluble particles.

The filter is made up of fine sand and stones.

Explain how the filter helps purify the water.

.....  
.....  
..... [2]

(iii) Explain why chlorine is used in water treatment.

..... [1]

(c) Anhydrous cobalt(II) chloride is used to test for water.

State the colour change in this test.

from ..... to ..... [2]

[Total: 9]

17. June/2021/Paper\_32/No.6

This question is about air and gases.

(a) (i) State the percentage of oxygen in clean, dry air.

..... % [1]

(ii) Name **two** other elements in clean, dry air.

..... and ..... [2]

(b) Lead and sulfur dioxide are pollutants of air.

For each of these pollutants state the source of the pollutant and an adverse effect of the pollutant.

source of lead .....

adverse effect .....

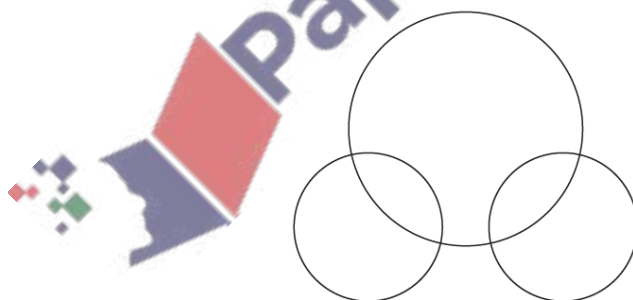
source of sulfur dioxide .....

adverse effect .....

[4]

(c) Water is present in the atmosphere.

(i) Complete the dot-and-cross diagram to show the electron arrangement in a molecule of water.



[2]

(ii) Anhydrous copper(II) sulfate is used to test for water.

State the colour change in this test.

from ..... to ..... [2]

[Total: 11]

18. June/2021/Paper\_33/No.6

This question is about air.

(a) State the percentage of nitrogen in clean, dry air.

..... % [1]

(b) Clean, dry air also contains argon. Argon is unreactive.

(i) Explain, using ideas about electronic structure, why argon is unreactive.

.....  
..... [1]

(ii) Give **one** use of argon.

..... [1]

(c) Carbon monoxide and oxides of nitrogen are pollutants of air.

For each of these pollutants state the source of the pollutant and an adverse effect of the pollutant.

source of carbon monoxide .....

adverse effect .....

source of oxides of nitrogen .....

adverse effect .....

[4]

[Total: 7]

