

Air and Water – 2019 Nov

1. 0620/11,12,13,21,22,23/O/N/19/No.28,30

River water contains soluble impurities, insoluble impurities and bacteria.

River water is made safe to drink by filtration and chlorination.

Which statement is correct?

- A** Filtration removes bacteria and insoluble impurities, and chlorination removes soluble impurities.
- B** Filtration removes insoluble impurities, and chlorination kills the bacteria.
- C** Filtration removes soluble and insoluble impurities, and chlorination kills the bacteria.
- D** Filtration removes soluble impurities and bacteria, and chlorination removes insoluble impurities.

2. 0620/11/O/N/19/No.29

Clean, dry air contains nitrogen, oxygen and small amounts of other gases. The noble gases have been left out of the table.

Which row shows the composition of clean, dry air?

	nitrogen / %	oxygen / %	other gases
A	21	78	small amount of carbon dioxide
B	21	78	small amount of carbon monoxide
C	78	21	small amount of carbon dioxide
D	78	21	small amount of carbon monoxide

3. 0620/11,12,13/O/N/19/No.31

Farmers add calcium oxide (lime) and ammonium salts to their fields.

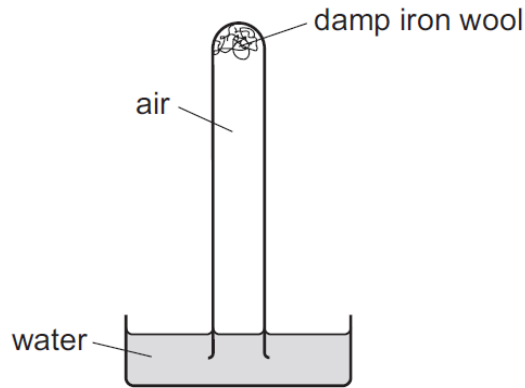
The compounds are not added at the same time because they react with each other.

Which gas is produced in this reaction?

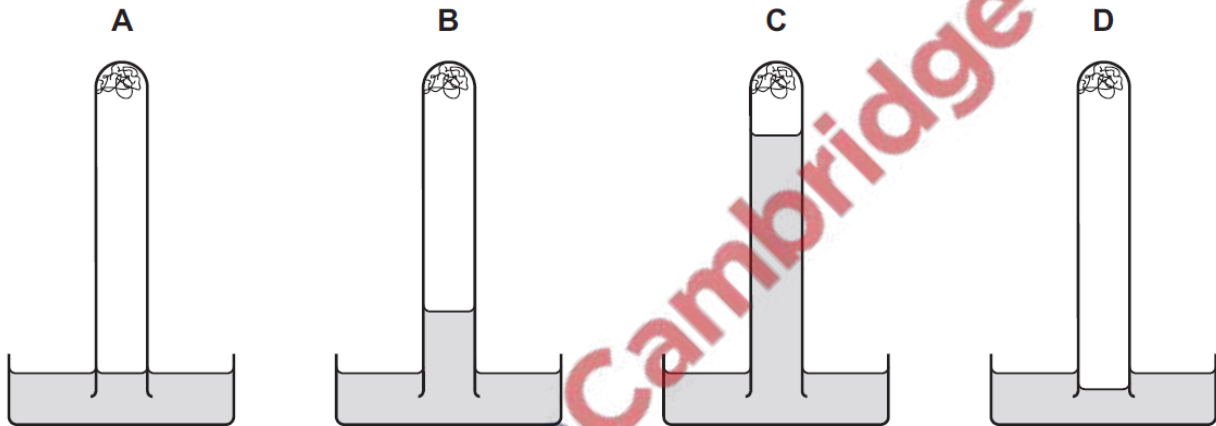
- A** ammonia
- B** carbon dioxide
- C** hydrogen
- D** nitrogen

4. 0620/11,12,13,21,22,23/O/N/19/No.30,32

The apparatus shown is set up and left for a week.



Which diagram shows the level of the water at the end of the week?



5. 0620/11,12,13/O/N/19/No.32

Which information about carbon dioxide and methane is correct?

		carbon dioxide	methane
A	formed when vegetation decomposes	✓	✗
B	greenhouse gas	✓	✓
C	present in unpolluted air	✗	✗
D	produced during respiration	✗	✓

key

✓ = true

✗ = false

6. 0620/12,13/O/N/19/No.29

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7. 0620/21/O/N/19/No.31

Which physical property is used to separate the nitrogen and oxygen from air?

- A** boiling point
- B** density
- C** electrical conductivity
- D** molecular mass

8. 0620/21/O/N/19/No.33

Which statement about the carbon cycle is correct?

- A** Carbon is absorbed from the atmosphere by combustion and released into it by respiration.
- B** Carbon is absorbed from the atmosphere by photosynthesis and released into it by combustion.
- C** Carbon is absorbed from the atmosphere by both respiration and combustion.
- D** Carbon is released into the atmosphere by both photosynthesis and respiration.

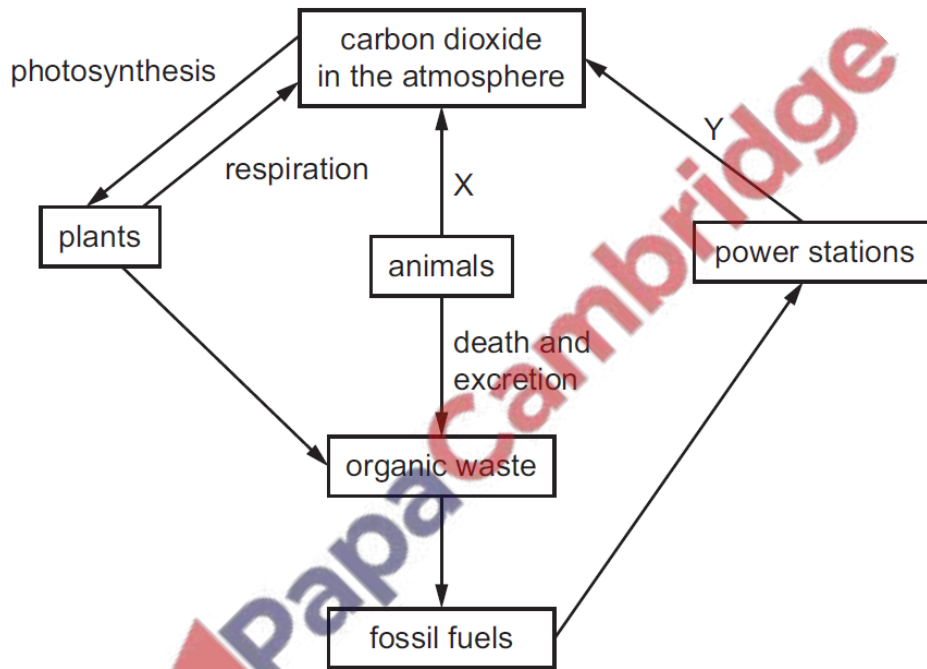
9. 0620/22/O/N/19/No.31

Which process is used to separate nitrogen and oxygen from air?

- A chromatography
- B evaporation
- C filtration
- D fractional distillation

10. 0620/22/O/N/19/No.33

The diagram represents an outline of the carbon cycle.



Which processes are X and Y?

	X	Y
A	combustion	respiration
B	decomposition	respiration
C	photosynthesis	combustion
D	respiration	combustion

11. 0620/22,23/O/N/19/No.34

Ammonium sulfate is used as a fertiliser.

It is made from ammonia and sulfuric acid.

Which words complete gaps 1, 2 and 3?

The1..... is made by the2..... process in which3..... is used as a catalyst.

	1	2	3
A	ammonia	Contact	iron
B	ammonia	Haber	vanadium(V) oxide
C	sulfuric acid	Contact	vanadium(V) oxide
D	sulfuric acid	Haber	iron

12. 0620/23/O/N/19/No.31

How are oxygen and nitrogen separated from air?

- A** chromatography
- B** condensation and filtration
- C** crystallisation
- D** fractional distillation

13. 0620/23/O/N/19/No.33

The following processes are part of the carbon cycle.

- 1 photosynthesis
- 2 combustion
- 3 respiration

Which processes decrease the amount of carbon dioxide in the atmosphere?

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