

Water

Question Paper 2

Level	IGCSE
Subject	Chemistry (0620/0971)
Exam Board	Cambridge International Examinations (CIE)
Topic	Air and Water
Sub-Topic	Water
Booklet	Question Paper 2

Time Allowed: 18 minutes

Score: /15

Percentage: /100

Grade Boundaries:

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

1. The table describes three types of water.

water type	source of water	appearance before treatment	treatment	appearance after treatment
P	river	muddy	none	muddy
Q	river	muddy	filtration and chlorination	clear
R	well	clear	chlorination only	clear

Which statement is correct?

- A** Only Q and R are suitable for drinking, while P could be used for irrigation.
 - B** Only Q and R are suitable for drinking, while P is unsuitable for any purpose.
 - C** Only Q is suitable for drinking. R could be used for washing cars and P for irrigation.
 - D** P, Q and R are suitable for irrigation and washing cars, but are not suitable for drinking.
2. Water was added to separate samples of anhydrous cobalt(II) chloride and anhydrous copper(II) sulfate.

Which row describes the colour changes that take place in these reactions?

	cobalt(II) chloride	copper(II) sulfate
A	blue to pink	blue to white
B	blue to pink	white to blue
C	pink to blue	blue to white
D	pink to blue	white to blue

3. In which reaction is the colour change from blue to white?

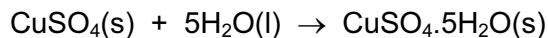
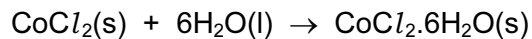
- A** heating hydrated cobalt(II) chloride
- B** heating hydrated copper(II) sulfate
- C** adding water to anhydrous cobalt(II) chloride
- D** adding water to anhydrous copper(II) sulfate

4. Which of the following are tests for water?

- 1 It turns anhydrous copper(II) sulfate blue.
- 2 It boils at 100 °C.
- 3 It turns anhydrous cobalt(II) chloride paper blue.

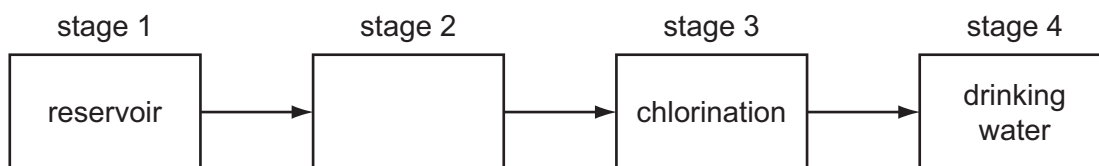
- A** 1, 2 and 3 **B** 1 and 2 only **C** 1 and 3 only **D** 2 and 3 only

5. Equations for the effect of water on anhydrous cobalt(II) chloride and anhydrous copper(II) sulfate are shown.



Which statement is **not** correct?

- A Both reactions can be reversed by changing the conditions.
 - B Both reactions can be used as a test for water.
 - C The colour change observed when hydrated copper(II) sulfate is heated is from blue to white.
 - D The colour change observed when water is added to anhydrous cobalt(II) chloride is from pink to blue.
6. The diagram shows how water is treated to make it suitable for drinking.



What happens in stage 2?

- A condensation
- B distillation
- C evaporation
- D filtration

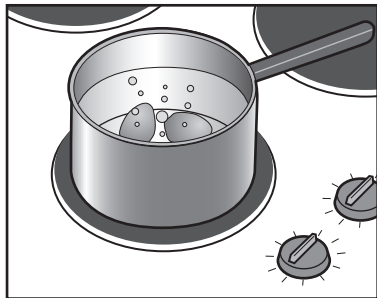
7 The flow chart shows stages in the treatment of river water to produce drinking water.



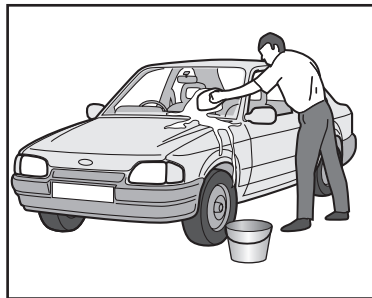
What occurs at stages X and Y?

	X	Y
A	distillation	chlorination
B	distillation	filtration
C	filtration	chlorination
D	filtration	distillation

8 The diagram shows some uses of water in the home.



1



2



3

For which uses is it important for the water to have been treated?

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

9 Two experiments involving water are described.

- 1 Water turns purple when potassium manganate(VII) is added to it.
- 2 Adding water to sodium causes the temperature to increase. Which row describes the

role of water in 1 and 2?

	1	2
A	as a chemical reagent	as a chemical reagent
B	as a chemical reagent	as a solvent
C	as a solvent	as a chemical reagent
D	as a solvent	as a solvent

10 X is a white solid which dissolves in water to give a blue solution.

What is X?

- A anhydrous cobalt(II) chloride
- B anhydrous copper(II) sulfate
- C hydrated cobalt(II) chloride
- D hydrated copper(II) sulfate

11 Which colour change is seen when hydrated cobalt(II) chloride is heated so that it becomes anhydrous cobalt(II) chloride?

- A blue to pink
- B blue to white
- C pink to blue
- D white to blue

12 Steel is made by adding 1 to molten iron to remove 2 from the iron.

Stainless steel is 3 resistant to corrosion than mild steel.

Which words complete the gaps 1, 2 and 3?

	1	2	3
A	basic oxides	acidic impurities	less
B	basic oxides	carbon	more
C	oxygen	acidic impurities	less
D	oxygen	carbon	more

13 When pink cobalt(II) chloride crystals are heated they form steam and a blue solid.

When water is added to the blue solid, it turns pink and becomes hot.

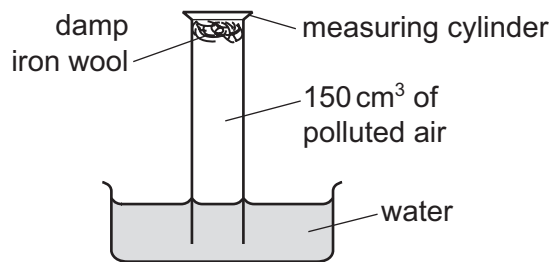
Which terms describe the pink cobalt(II) chloride crystals and the reactions?

	pink cobalt(II) chloride	reactions
A	aqueous	irreversible
B	anhydrous	reversible
C	hydrated	irreversible
D	hydrated	reversible

14 Which row correctly matches the experiment and observations to the identity of the underlined substance?

	experiment and observations	identity of the underlined substance
A	<u>Blue crystals</u> are heated. The crystals turn white and steam is given off.	hydrated cobalt(II) chloride
B	<u>Pink crystals</u> are heated. The crystals turn blue and steam is given off.	anhydrous cobalt(II) chloride
C	Water is added to a <u>blue solid</u> . The blue solid turns pink.	hydrated copper(II) sulfate
D	Water is added to a <u>white solid</u> . The white solid turns blue.	anhydrous copper(II) sulfate

15 An experiment to find the percentage of oxygen in 150 cm³ of polluted air is shown.



The apparatus is left for one week.

After this time, the volume of gas in the measuring cylinder is 122 cm³.

What is the percentage of oxygen, to the nearest whole number, in the polluted air?

- A** 19% **B** 21% **C** 28% **D** 81%