

# Group Properties

## Question Paper 1

Level	IGCSE
Subject	Chemistry (0620/0971)
Exam Board	Cambridge International Examinations (CIE)
Topic	The Periodic Table
Sub-Topic	Group Properties
Booklet	Question Paper 1

**Time Allowed:** 25 minutes

**Score:** /21

**Percentage:** /100

### Grade Boundaries:

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

1. Astatine is an element in Group VII of the Periodic Table. It has only ever been produced in very small amounts.

What is the best description of its likely properties?

	colour	state	reaction with aqueous potassium iodide
<b>A</b>	black	solid	no reaction
<b>B</b>	dark brown	gas	brown colour
<b>C</b>	green	solid	no reaction
<b>D</b>	yellow	liquid	brown colour

2. Which statement describes the trends going down group VII of the Periodic Table?

- A** The boiling point and melting point both decrease.
- B** The boiling point and melting point both increase.
- C** The boiling point decreases but the melting point increases.
- D** The boiling point increases but the melting point decreases.

3. The table compares the properties of Group I elements with those of transition elements.

Which entry in the table is correct?

	property	Group I elements	transition elements
<b>A</b>	catalytic activity	low	high
<b>B</b>	density	high	low
<b>C</b>	electrical conductivity	low	high
<b>D</b>	melting point	high	low



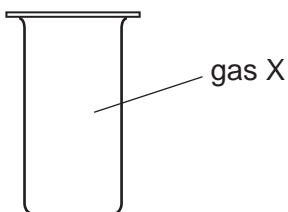
7. The table shows some properties of two elements in Group VII of the Periodic Table.

element	state at 20 °C	density / g per cm <sup>3</sup>	melting point / °C
chlorine	gas	0.0032	-101
bromine	liquid	3.1	-7

Which properties is fluorine likely to have?

	state at 20 °C	density / g per cm <sup>3</sup>	melting point / °C
<b>A</b>	gas	0.0017	-220
<b>B</b>	gas	0.17	-188
<b>C</b>	liquid	0.0017	-220
<b>D</b>	liquid	0.17	-188

8. X is a monatomic gas.



Which statement about X is correct?

- A** X burns in air.
- B** X is coloured.
- C** X is unreactive.
- D** X will displace iodine from potassium iodide.

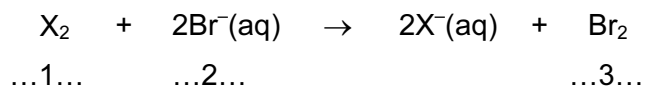
9. The diagram shows a section of the Periodic Table.

	I	II	III	IV	V	VI	VII	0
	V			W			X	
		Y				Z		

Which elements will conduct electricity at room temperature?

- A** V, W and X    **B** V, Y and W    **C** W, X and Z    **D** Y and Z

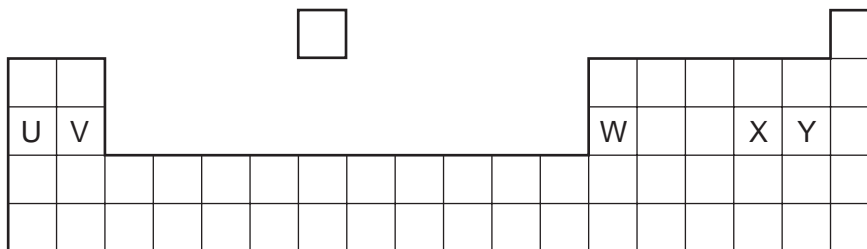
10. The equation shows the reaction between a halogen and aqueous bromide ions.



Which words correctly complete gaps 1, 2 and 3?

	1	2	3
<b>A</b>	chlorine	brown	colourless
<b>B</b>	chlorine	colourless	brown
<b>C</b>	iodine	brown	colourless
<b>D</b>	iodine	colourless	brown

11 The diagram shows an outline of the Periodic Table.



Which of the elements U, V, W, X and Y would react together in the ratio of 1 : 1?

- A** U and X      **B** U and Y      **C** V and Y      **D** W and X

12 The element rubidium, Rb, is immediately below potassium in the Periodic Table.

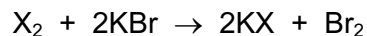
It reacts with bromine to form the compound rubidium bromide.

Which descriptions of this compound are correct?

	type of bond	formula	colour
<b>A</b>	covalent	RbBr	brown
<b>B</b>	covalent	RbBr <sub>2</sub>	white
<b>C</b>	ionic	RbBr	white
<b>D</b>	ionic	RbBr <sub>2</sub>	brown

13 Element X is in Group VII of the Periodic Table.

It reacts with aqueous potassium bromide as shown.



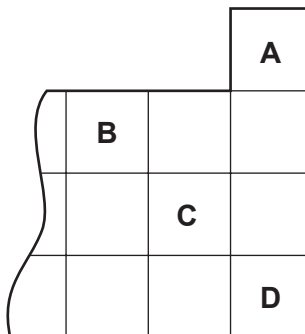
Which statements about X are correct?

	relative atomic mass	reactivity
<b>A</b>	greater than that of bromine	less reactive than bromine
<b>B</b>	greater than that of bromine	more reactive than bromine
<b>C</b>	less than that of bromine	less reactive than bromine
<b>D</b>	less than that of bromine	more reactive than bromine

14 The diagram shows a section of the Periodic Table.

Which element is described below?

'A colourless, unreactive gas that is denser than air.'



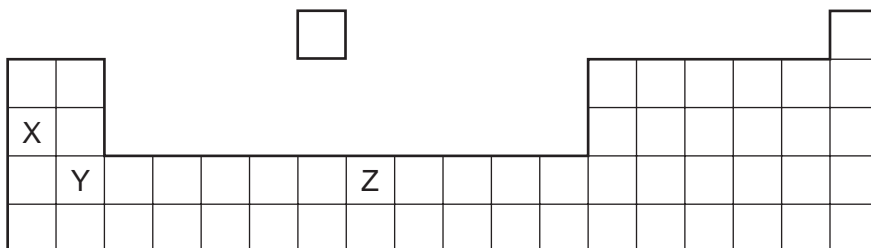
15. Element X is below iodine in the Periodic Table.

Which row correctly shows the physical state of element X at room temperature and its reactivity compared with that of iodine?

	physical state of element X at room temperature	reactivity compared with that of iodine
<b>A</b>	gas	less reactive
<b>B</b>	solid	less reactive
<b>C</b>	gas	more reactive
<b>D</b>	solid	more reactive



16. The diagram shows an outline of part of the Periodic Table.



Which statement about elements X, Y and Z is **not** correct?

- A All are metals.
- B All conduct electricity.
- C All form coloured compounds.
- D All react with oxygen.

17. The diagrams show the labels of four bottles.

Which label is **not** correct?

A	B	C	D
Bromine $\text{Br}_2$  Harmful liquid. Do not spill.	Iodine $\text{I}_2$  Danger Avoid breathing vapour from the solid.	Potassium K  Danger Store under water.	Sodium Na  Danger Store under oil.

18. Fluorine is at the top of Group VII in the Periodic Table.

Which row shows the properties of fluorine?

	colour	state at room temperature	reaction with aqueous potassium iodide
<b>A</b>	brown	gas	no reaction
<b>B</b>	brown	liquid	iodine displaced
<b>C</b>	yellow	gas	iodine displaced
<b>D</b>	yellow	liquid	no reaction

19. Group I metals are also known as the Alkali Metals.

Which statement about the metals in Group I is **not** correct?

- A** In their reactions they lose electrons.
- B** Their atoms all have one electron in their outer shell.
- C** They form +1 ions in their reactions with non-metals.
- D** They form covalent compounds by sharing electrons.

20.. Which element will be less reactive than the other members of its group in the Periodic Table?

- A** astatine
- B** caesium
- C** fluorine
- D** rubidium

21. Bromine is in Group VII on the Periodic Table.

Which describes the appearance of bromine at room temperature?

- A** grey solid
- B** purple fumes
- C** red-brown liquid
- D** yellow gas