

Group Properties

Question Paper 2

Level	IGCSE
Subject	Chemistry (0620/0971)
Exam Board	Cambridge International Examinations (CIE)
Topic	The Periodic Table
Sub-Topic	Group Properties
Booklet	Question Paper 2

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. The positions of elements W, X, Y and Z in the Periodic Table are shown.

Which elements form basic oxides?

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

2.. Elements in Group I of the Periodic Table react with water.

Which row describes the products made in the reaction and the trend in reactivity of the elements?

	products	trend in reactivity
A	metal hydroxide and hydrogen	less reactive down the group
B	metal hydroxide and hydrogen	more reactive down the group
C	metal oxide and hydrogen	less reactive down the group
D	metal oxide and hydrogen	more reactive down the group

3. Which statement about the elements of Group I is correct?

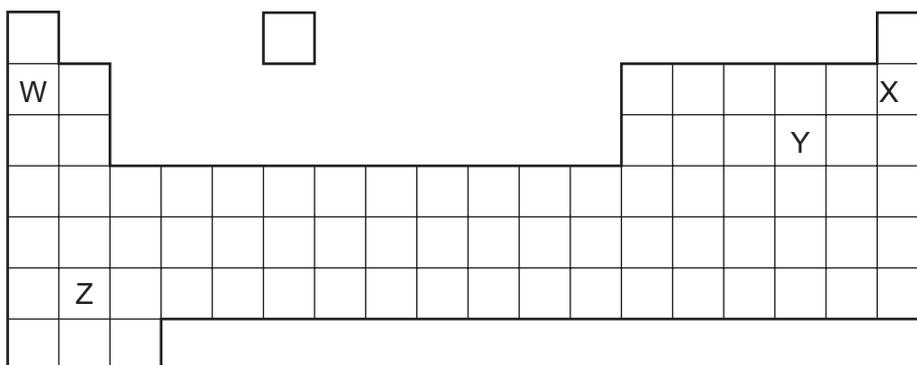
- A** Lithium is more dense than sodium.
- B** Potassium has a higher density than lithium.
- C** Potassium is less reactive than sodium.
- D** Sodium has a higher melting point than lithium.

4. Element X is a non-metal.

In which position of the Periodic Table could element X be found?

- A** at the bottom of Group I
- B** at the top of Group 0
- C** at the top of Group I
- D** in the transition elements

5. The diagram shows a simplified form of the Periodic Table:



Which elements will form an acidic oxide?

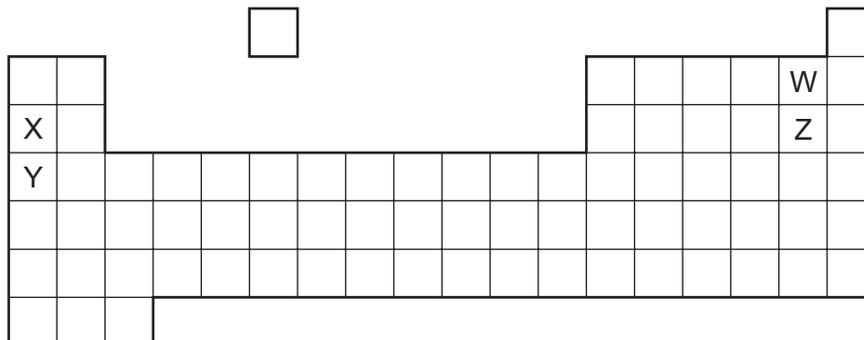
- A** W and Z
- B** W only
- C** X and Y only
- D** Y only

6. Which statements about Group I and Group VII elements are correct?

- 1 In Group I, lithium is more reactive than potassium.
- 2 In Group VII, chlorine is more reactive than fluorine.

	statement 1	statement 2
A	✓	✓
B	✓	x
C	x	✓
D	x	x

9. The diagram shows elements W, X, Y and Z in a section of the Periodic Table.



Which statement about the reactivity of the elements is correct?

- A** X is more reactive than Y, and W is more reactive than Z.
- B** X is more reactive than Y, and Z is more reactive than W.
- C** Y is more reactive than X, and W is more reactive than Z.
- D** Y is more reactive than X, and Z is more reactive than W.

10. Element X is in Group I of the Periodic Table.

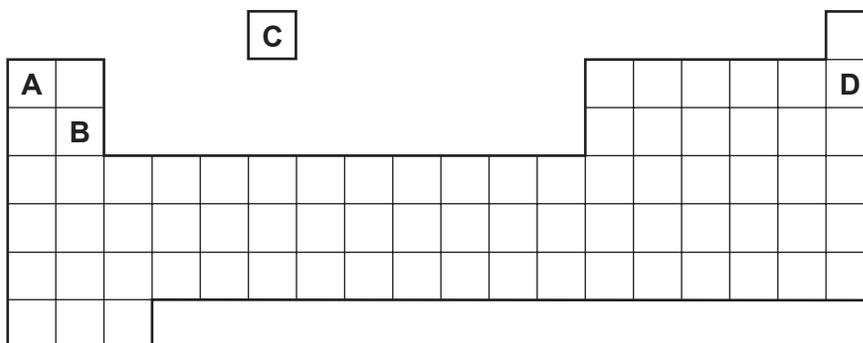
Which row shows the type of oxide and whether element X is metallic or non-metallic?

	type of oxide	metallic or non-metallic
A	acidic	metallic
B	acidic	non-metallic
C	basic	metallic
D	basic	non-metallic

11. Which element is in the same group of the Periodic Table as lithium?

	electrical conductivity	density in g/cm ³
A	high	0.97
B	high	8.93
C	low	0.07
D	low	3.12

12.. The positions of four elements in the Periodic Table are shown.
Which element does **not** form a compound with chlorine?



13 The table shows some properties of the Group I metals.

metal	melting point/°C	hardness	reaction with water
lithium	181	moderately soft	steady effervescence
sodium	98	soft	vigorous effervescence
potassium	63	very soft	very vigorous effervescence
rubidium	?	?	?

What are the properties of rubidium?

- A** melts below 63 °C, very soft, reacts explosively with water
- B** melts below 63 °C, very soft, reacts slowly with water
- C** melts above 181 °C, very soft, reacts explosively with water
- D** melts above 181 °C, very soft, reacts slowly with water

14. X is a Group I metal.

Y and Z are Group VII elements.

When X reacts with Y a salt is formed. A solution of this salt reacts with Z to form a different salt.

What are X, Y and Z?

	X	Y	Z
A	K	Cl ₂	I ₂
B	Li	Cl ₂	Br ₂
C	Mg	Br ₂	Cl ₂
D	Na	I ₂	Cl ₂

15. Which pair of elements will react together most violently?

- A** chlorine and lithium
- B** chlorine and potassium
- C** iodine and lithium
- D** iodine and potassium

16. The table shows some information about elements in Group VII of the Periodic Table.

name	state at room temperature	colour
chlorine	gas	yellow-green
bromine	liquid	brown
iodine	?	?
astatine	solid	black

Which information about iodine completes the table?

	state	colour
A	liquid	black
B	liquid	green
C	solid	grey
D	solid	yellow

17 Some properties of four elements, P, Q, R and S, are shown in the table.

Two of these elements are in Group I of the Periodic Table and two are in Group VII.

element	reaction with water	physical state at room temperature
P	reacts vigorously	solid
Q	does not react with water	solid
R	reacts explosively	solid
S	dissolves giving a coloured solution	liquid

Which statement is correct?

- A P is below R in Group I.
- B Q is above R in Group I.
- C Q is below S in Group VII.
- D R is below S in Group VII.

18. Rubidium is a Group I metal.

Which statement about rubidium is **not** correct?

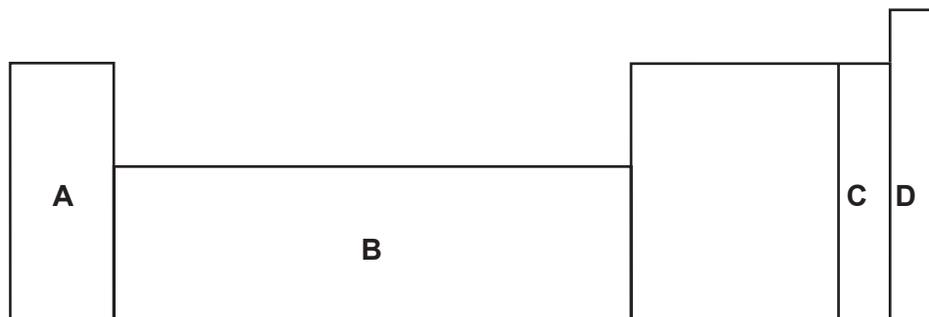
- A It has a higher melting point than lithium.
- B It has one electron in its outer shell.
- C It reacts vigorously with water.
- D It reacts with chlorine to form rubidium chloride, RbCl .

19 Which statement about the elements in Group I is correct?

- A Hydrogen is evolved when they react with water.
- B Ions of Group I elements have a -1 charge.
- C Sodium is more reactive than potassium.
- D Solid sodium is a poor electrical conductor.

20 An element does not conduct electricity and exists as diatomic molecules.

Where in the Periodic Table is the element found?



21. The elements in a group of the Periodic Table show the following trends.

- 1 The element with the lowest proton number has the lowest reactivity.
- 2 All the elements in the group form basic oxides.
- 3 The density of the elements increases down the group.
- 4 The melting point of the elements decreases down the group.

In which group are the elements found?

A I **B** IV **C** VI **D** VII

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

What are the likely properties of astatine?

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

23. 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
A	catalytic activity	low	high
B	density	high	low
C	electrical conductivity	low	low
D	melting point	high	low

24. Astatine is an element in Group VII of the Periodic Table.

Astatine is1..... reactive than iodine.

The melting point of astatine is2..... than the melting point of iodine.

Astatine is3..... in colour than bromine.

Which words complete gaps 1, 2 and 3?

	1	2	3
A	less	higher	darker
B	less	lower	lighter
C	more	higher	darker
D	more	lower	lighter

25. Sodium and rubidium are elements in Group I of the Periodic Table.

Which statement is correct?

- A** Sodium atoms have more electrons than rubidium atoms.
- B** Sodium has a lower density than rubidium.
- C** Sodium has a lower melting point than rubidium.
- D** Sodium is more reactive than rubidium.

26. Which element is less reactive than the other members of its group in the Periodic Table?

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

27. Ununseptium (atomic number 117) is a man-made element that is below astatine in Group VII of the Periodic Table.

What is the expected state of ununseptium at room temperature?

- A a diatomic gas
- B a liquid
- C a monatomic gas
- D a solid

28. Magnesium, calcium, strontium and barium are Group II elements.

Group II elements follow the same trends as Group I elements.

Which statements about Group II elements are correct?

- 1 Calcium reacts faster than magnesium with water.
- 2 Barium reacts less vigorously than magnesium with dilute acid.
- 3 Strontium oxidises in air more slowly than barium.

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

29. Where in the Periodic Table is the metallic character of the elements greatest?

	left or right side of a period	at the top or bottom of a group
A	left	bottom
B	left	top
C	right	bottom
D	right	top