Paper 1

Questions are applicable for both core and extended candidates

1 The table shows some properties of some of the elements in Group I of the Periodic Table.

element	melting point / °C	reaction with water
lithium	181	fizzes steadily
sodium	98	fizzes vigorously
potassium	64	fizzes very vigorously

Rubidium is also an element in Group I of the Periodic Table.

Which row describes the properties of rubidium?

	melting point / °C	reaction with water
A	39	fizzes slowly
B	39	fizzes explosively
C	81	fizzes very vigorously
D	81	fizzes explosively

2 Which statement about the properties of elements in Group I or in Group VII is correct?

A Bromine displaces iodine from an aqueous solution of potassium iodide.

B Chlorine, bromine and iodine are diatomic gases at room temperature.

C Lithium, sodium and potassium are soft non-metals.

D Lithium, sodium and potassium have an increasing number of electrons in their outer shells.

3 Rubidium and strontium are both in Period 5 of the Periodic Table.

Rubidium is in Group I. Strontium is in Group II.

Which statement about these elements is correct?

A Each element has five electrons in its outer electron shell.

B The atomic number of rubidium is greater than the atomic number of strontium.

C Rubidium forms the Rb^{+} ion; strontium forms the Sr^{2+} ion.

D Electrolysis of molten rubidium chloride and of molten strontium chloride produces hydrogen.

4 Some information about element X is given.

- melting point = 64 °C
- density = $0.86\,g/cm^3$
- vigorous reaction with water

Where in the Periodic Table is X placed?

A Group 0

B Group I

C Group VII

D transition metals

5 Which row shows the trend in melting point, density and reactivity as Group I is descended?

	melting point	density	reactivity
A	increases	decreases	decreases
B	decreases	increases	increases
C	increases	decreases	increases
D	decreases	increases	decreases

6 Element X forms ions with the formula X^{2-}.

Which row describes element X?

	group number	type of element
A	II	metal
B	II	non-metal
C	VI	metal
D	VI	non-metal

7 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.

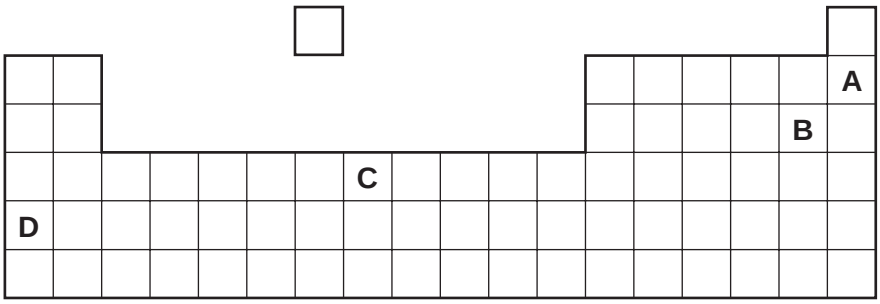
B Sodium has a lower density than rubidium.

C Sodium has a lower melting point than rubidium.

D Sodium is more reactive than rubidium.

8 Part of the Periodic Table is shown.

Which element is a soft solid that reacts violently with cold water?



9 Lithium, sodium and potassium are elements in Group I of the Periodic Table.

Which statement about these elements is correct?

A Lithium has the highest melting point and the lowest density.

B Lithium has the highest density and the most violent reaction with water.

C Potassium has the highest melting point and the highest density.

D Potassium has the lowest melting point and the least violent reaction with water.

10 Some information about properties of Group I elements is shown.

element	melting point / °C	density in g / cm^3
lithium	181	0.53
sodium	98	0.97
potassium	X	
rubidium	Y	Z

What are the values for X, Y and Z?

	X	Y	Z
A	63	252	0.26
B	63	39	0.26
C	39	63	1.53
D	63	39	1.53

11 Which statement about sodium is correct?

A It is a reactive grey solid which does not conduct electricity.

B It is a very reactive element that forms ions with a single negative charge.

C It reacts slowly with water to form oxygen.

D It reacts rapidly with water to form its hydroxide.

Paper 2

Questions are applicable for both core and extended candidates unless indicated in the question

12 Elements in Group I and Group II show the same trends in their reactions with water and in their density.

Which row shows how the properties of barium compare with calcium?

	reaction with water	density
A	faster	higher
B	faster	lower
C	slower	higher
D	slower	lower

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

Group II elements follow the same trends in reactivity 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

14 Group II elements show the same trends as Group I elements.

Which statement about elements in Group II is correct?

A The melting point of barium is higher than the melting point of calcium.

B Barium is more reactive than beryllium.

C Strontium would not react with oxygen.

D Magnesium is more dense than barium.