

1 In the Periodic Table, how does the metallic character of the elements vary from left to right across a period?

- A It decreases.
- B It increases.
- C It increases then decreases.
- D It stays the same.

[1]

[Total: 1]

2 This question is about Group I elements.

The properties of some Group I elements are shown in the table.

element	melting point in °C	boiling point in °C	relative thermal conductivity	atomic radius / pm
lithium	1342	84	152
sodium	97	883	142	186
potassium	63	760	102
rubidium	39	686	58	248

(a) Complete the table to estimate:

- the melting point of lithium [2]
- the atomic radius of potassium. [2]

(b) Describe the trend in the boiling points of the Group I elements down the group.

..... [1]

(c) Caesium is below rubidium in Group I.

Use the information in the table to suggest why it is difficult to predict the thermal conductivity of caesium.

.....
..... [1]

- (d) Predict the physical state of rubidium at 45 °C
Give a reason for your answer.

.....
.....

[2]

[Total: 6]

- 3 In the Periodic Table, the elements are arranged in columns called Groups and in rows called Periods.

- (a) Complete the table for some of the elements in Period 3.

group number	I	II	III	IV	V	VI	VII
symbol	Na	Mg	Al	Si	P	S	Cl
number of valency electrons							
valency							

[2]

- (b) What is the relationship between the group number and the number of valency electrons?

.....
.....

[1]

- (c) Explain the relationship between the number of valency electrons and the valency
for the elements Na to Al,

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.....
.....

for the elements P to Cl.

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.....
.....

[4]

[Total: 7]

- 4 Across a period, the elements change from metallic to non-metallic.

(a) Describe how the type of oxide changes across this period.

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..... [2]

(b) Describe how the type of bonding in the chlorides formed by these elements changes across this period.

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..... [2]

[Total: 4]