

[Groups/periods and patterns]

Q1.(2018)

D ✓

Q2.(2021)

C ✓

Q3.(2022)

Please refer to the marking instructions on page 4 of this mark scheme for guidance on how to mark this question.

Level 3 (5–6 marks)

Describes both the trends in the data from Table 13.1 **AND** explains using the relevant data in Table 13.2 linking ideas about structure and bonding of simple covalent molecules

There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.

Level 2 (3–4 marks)

Describes a trend in the data from Table 13.1 **AND** explains a trend using relevant data from Table 13.2 linking ideas about structure and bonding of simple covalent molecules

There is a line of reasoning presented with some structure. The information presented is relevant and supported by some evidence.

Level 1 (1–2 marks)

Describes a trend in the data from Table 13.1 or Table 13.2 **OR** explains an idea about structure and bonding of simple covalent molecules

There is an attempt at a logical structure with a line of reasoning. The information is in the most part relevant.

0 marks

No response or no response worthy of credit.

6

4 x 2.1a
2 x 3.1a

AO3.1a Analyse information and ideas to interpret and evaluate e.g.

- boiling point increases going from HCl to HI
- boiling point increases with size of molecule
- temperature required for thermal decomposition decreases going from HCl to HI
- temperature required for thermal decomposition decreases with decreasing bond strength

AO2.1a Apply knowledge and understanding of scientific ideas e.g.

- boiling involves breaking intermolecular forces
- boiling point increases as the strength of intermolecular forces increases
- strength of intermolecular forces increases with size of molecules
- the stronger the intermolecular forces the more energy required to break them
- thermal decomposition involves breaking a covalent bond
- the stronger the bond the more energy is required to break it
- the smaller the molecule/shorter the covalent bond the more energy required to break it
- shorter covalent bonds are stronger
- greater attraction between the nucleus and the bonding electrons, so bond is stronger/shorter

Q4.(2024)

B

Q5.(2024)

Idea that both are in Group 1 / both are in the same group / both have 1 electron in their outer energy level / both lose 1 electron / both form 1+ ions ✓