

Bonding – AS 2022 Chemistry P11. *June/2022/Paper_7404/1/No.3*

This question is about shapes of molecules.

Complete **Table 2** by drawing the shapes of both the AsF_5 and KrF_2 molecules, showing all lone pairs of electrons that influence the shape.

Deduce the bond angle(s) in AsF_5

[3 marks]

Table 2

	AsF_5	KrF_2
Diagram of shape		
Bond angle(s)		

2. June/2022/Paper_7404/1/No.4

0 4

This question is about intermolecular forces.

0 4 . 1

Complete the diagram to show how one molecule of ammonia can form a hydrogen bond with one molecule of ethanol. Include all lone pairs of electrons and partial charges on atoms involved in the hydrogen bond.

[3 marks]

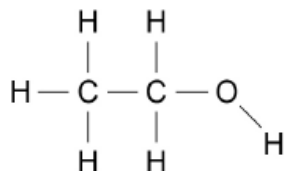


Table 3 shows the electronegativity values of atoms of some elements.

Table 3

Atom	H	C	N	O	Br
Electronegativity	2.1	2.5	3.0	3.5	2.8

0 4 . 2

Define the term electronegativity.

[1 mark]

0 4 . 3

Deduce the **two** atoms from **Table 3** that will form the most polar bond.

[1 mark]

0 4 . 4 The C–Br bond is polar.

Explain why CBr₄ is **not** a polar molecule.

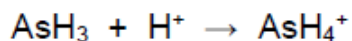
[2 marks]

0 4 . 5 Suggest, in terms of the intermolecular forces for each compound, why CBr₄ has a higher boiling point than CHBr₃

[3 marks]

3. *June/2022/Paper_7404/1/No.15*

The equation for a reaction is



What type of interaction forms in this reaction?

[1 mark]

A Co-ordinate bond

B Dipole–dipole force

C Hydrogen bond

D Ionic bond

4. June/2022/Paper_7404/1/No.23

Which is **not** responsible for conducting electricity?

[1 mark]

A The sodium ions in molten sodium chloride

B The electrons between layers of carbon atoms in graphite

C The bonding electrons in a metal

D The lone pair electrons in liquid water molecules