**Intermolecular forces**

**2019**

**(a)** List all the forces of attraction between the following molecules in their liquid state.



(b) (i) Using the data in the above table, identify the molecule that has the strongest forces of attraction between its molecules.

(ii) Justify why methanamine has a higher boiling point than ethane.

(iii) Justify why methanamine has a higher boiling point than ammonia.

**2018**

(a) (i) List all the forces of attraction between the molecules in their liquid state.



(ii) Compare and contrast the enthalpy of vaporisation of methanol, propan-1-ol, and propanal.

Your answer should include an explanation of the relative strength of the attractive forces between the molecules.

**2017**



Use the information in the table above to compare and contrast the boiling points of the substances below.

In your answers, you should:

• list the types of intermolecular forces present for each substance

• explain the relative strength between the particles involved.

(a) (i) Hydrazine and iodomethane.

(ii) Iodomethane and decane.

(b) Explain why the solubility of hydrazine in water is greater than that of decane in water.

**2016**

(a) Identify all the attractive forces between particles of the following compounds in their liquid state.



(b) (i) Explain why Δvap*H*°(NaCl) is significantly higher than both Δvap*H*°(HCl) and Δvap*H*°(CH3Cl).

(ii) Explain why Δvap*H*°(CH3Cl) is greater than Δvap*H*°(HCl).

**2015**

The two molecules below have the same molecular formula (C5H12O) but have different boiling points.



(i) List all the forces of attraction between these molecules in each of their liquid states.

(ii) Use the information above to explain the difference in the boiling points of pentan-1-ol and dimethylpropan-1-ol by comparing and contrasting the relative strengths of the attractive forces between the molecules involved.

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