

How do you determine what types of intermolecular forces a compound will experience?

Sample answer:

Draw the Lewis structures for each and determine their molecular structure. From that, classify each as polar or nonpolar, and determine if any have N-H, O-H, or F-H bonds. Then:

All compounds have induced dipole- induced dipole forces

Polar molecules also have dipole-dipole forces.

Molecules containing any N-H, O-H, or F-H bonds also have hydrogen bonds.

How do you determine whether molecules of a compound will be held together by hydrogen bonds? What do you look for? Draw Lewis structures for examples of that do and that do not.

Given Lewis structures for molecules, how do you rank their relative IMF strengths? What do you look for? Give examples.

How do melting point, boiling point and vapor pressure trends align with IMF trends? If you know compound A has a higher boiling point than compound B, can you reliably rank their IMF strengths?

Name: _____

How do you predict whether a nonionic compound will dissolve in water? What do you look for? Give examples that do and do not?

Define hydrophilic and hydrophobic. Give an example of each using a neutral molecule.

How do you classify a solid as molecular, extended, ionic, or metallic? What do you look for?

What is the underlying reason salts with highly charged ions tend to be less soluble in water than those with lower charges? Draw molecular-scale sketches to illustrate your answer.

Why do oil and water not mix? Draw a sketch showing this on the molecular scale.

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What controls differences in melting points of ionic compounds?

What effect does partial pressure of a gas have on the solubility of that gas? Is this always true?

What effect does temperature have on the solubility of an ionic compound? Is this always true?

How do boiling point, freezing point, vapor pressure and osmotic pressure change as the concentration of a solution increases? If solution A has a higher vapor pressure than solution B, how do they rank in solute concentration, boiling point, freezing point and osmotic pressure?

Describe how osmotic pressure arises. Draw a sketch showing this on the molecular scale.