

Solutions

Each answer shows the steps, then the **result**.

2.1

- A solute dissolves in a solvent with similar intermolecular forces (polar dissolves polar, nonpolar dissolves nonpolar)

2.2

- No — water is polar; it cannot form favorable attractions with a nonpolar solute, so they stay separate

2.3

- Water (a polar solvent)

3.1 B

- a polar solvent

3.2

(a)

- Hexane

(b)

- I_2 is nonpolar, so it mixes with the nonpolar hexane (similar dispersion forces) but not with polar, hydrogen-bonded water

3.3

- Ethanol has an $-\text{OH}$ group that hydrogen-bonds with water, so it dissolves; hexane is entirely nonpolar and cannot form such attractions with water