

Solutions

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

2.1

- the ratio of the concentrations of a solute distributed between two immiscible solvents at equilibrium

2.2

- “like dissolves like” — a solute prefers the solvent of similar polarity

3.1 B

- A non-polar solute dissolves better in the non-polar hexane

3.2 B

- It depends on the polarities of the solute and the solvents

3.3

(a)

- $K_{\text{pc}} = 0.80/0.20 = 4.0$

(b)

- solvent A; the higher concentration shows the solute is more soluble in A (it is of more similar polarity)

3.4

- a polar solute and water can form strong interactions (e.g. hydrogen bonds / dipole-dipole); hexane is non-polar and cannot, so the solute prefers the water