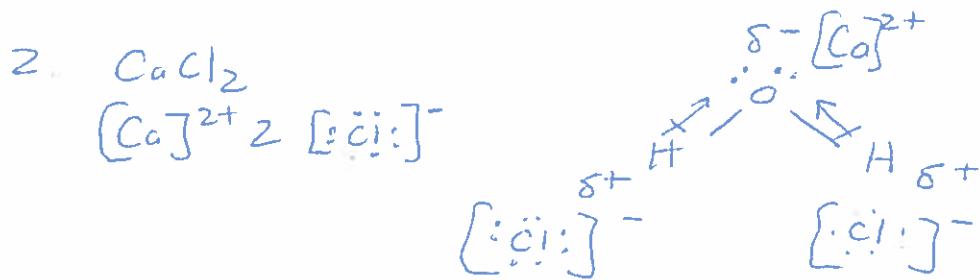


Concentration Quiz b

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1. Liquid B is a solution because when it left it's residue that was the solute that had been dissolved in the solvent.



Water is polar, meaning that it has a positive and negative end. It can dissolve ionic compounds well because they are charged.

3. a) $M_{\text{C}_2\text{H}_2\text{O}_{11}} = 342.297 \text{ g/mol}$

$$n = 10.3 \text{ g} \times \frac{1 \text{ mol}}{342.297 \text{ g}} = 0.03009 \text{ mol}$$

$$C = \frac{0.03009 \text{ mol}}{0.1000 \text{ L}} = 0.301 \text{ mol/L}$$

\therefore the concentration is 0.301 mol/L

b) $c_c = 0.150 \text{ mol/L}$

$V_c = 0.05 \text{ L}$

$V_d = 0.200 \text{ L}$

$c_d = ?$

$$c_d V_d = c_c V_c$$

$$c_d = \frac{(0.150 \text{ mol/L})(0.05 \text{ L})}{0.200 \text{ L}}$$

$$= 0.0375 \text{ mol/L}$$

\therefore the concentration is 0.0375 mol/L

4. a) $M_{\text{KBr}} = 119.002 \text{ g/mol}$

$$n = 0.457 \text{ mol/L} \times 2.00 \text{ L} = 0.914 \text{ mol}$$

$$m = 0.914 \text{ mol} \times \frac{119.002 \text{ g}}{\text{mol}} = 109 \text{ g}$$

1. weigh out 109g into a clean, dry beaker
2. dissolve in a minimum amount of H_2O (deionized)
3. transfer to a 2L volumetric flask with 3 rinsings
4. dilute to the mark with deionized water
5. cap and shake

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b) $c_c = 2.912 \text{ mol/L}$

$v_c = ?$

$v_d = 500.0 \text{ mL}$

$c_d = 0.0756 \text{ mol/L}$ ✓

$c_d v_d = c_c v_c$ ✓

$$v_c = \frac{(0.0756 \text{ mol/L})(500.0 \text{ mL})}{2.912 \text{ mol/L}}$$

$= 13.0 \text{ mL}$ ✓

1. pipette 13 mL out of the standard solution (2.912 mol) into a 500 mL volumetric flask ✓
2. dilute to the mark with deionized water ✓
3. cap and shake. ✓

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