Chapter 15

15.2 Undissolved solid indicates that 2 phases are in equilibrium, which is what K_{sp} refers to.

15.8 (a) ethanol because it forms H-bonds

(b) propanol because it has a shorter hydrophobic chain

(c) Iodine because it forms H-bonds

(d) Vitamin C because it is more polar

15.9 (a) toluene because it is less polar than NaCl

(b) C_2H_6 because it is less polar than H_2SO_4

(c) Napthalene because it is less polar than sugar and can't form H-bonds.

15.10(a) $0.375 \frac{\text{Moles } Na_2SO_4}{\text{liter}} \times 0.100\,\text{L} \times \frac{142\,\text{g}}{\text{mole } Na_2SO_4} = 5.33\,\text{g } Na_2SO_3$

(b) $0.150 \frac{\text{mole } AgNO_3}{\text{liter}} \times 0.100\,\text{L} \times \frac{170\,\text{g}}{\text{mole } AgNO_3} = 2.55\,\text{g } AgNO_3$

(c) $0.625 \frac{\text{mole } C_6H_{12}O_6}{\text{L}} \times 0.100\,\text{L} \times \frac{180\,\text{g}}{\text{mole } C_6H_{12}O_6} = 11.3\,\text{g } C_6H_{12}O_6$

(d) $1.00 \frac{\text{mole HCl}}{\text{L}} \times 0.100\,\text{L} \times \frac{36.5\,\text{g HCl}}{\text{mole HCl}} = 3.65\,\text{g HCl}$

15.11 moles don't appear or disappear so:

$C_1V_1 = C_2V_2$ and so $C_2 = \frac{C_1V_1}{V_2}$

(a) $C_2 = \frac{C_1V_1}{V_2} = \frac{(0.375\ \text{mole}\cdot\text{L}^{-1})(0.100\,\text{L})}{0.125\,\text{L}} = 0.300\,\text{M}$

(b) do above : 0.120 M

(c) 0.510 M

(d) 0.800 M