Discussion Quiz #7 (10 minutes)

Your Name: ___KEY__
TF's Name:_____ Discussion Day/Time: _____

1. You have three containers with the following solutions: (i) 0.1 moles of $NaNO_3$ fully dissolved in 200 mL of water (ii) 0.2 moles of $Ba(OH)_2$ fully dissolved in 300 mL of water (iii) 0.1 moles of $MgSO_4$ fully dissolved in 500 mL of water. These three solutions are combined in a large container for a total volume of 1 L.

   a. (4 points) Write the balanced **NET** ionic equation.

   $Ba^{2+}(aq)$ 0.2mol
   $OH^-(aq)$ 0.4mol
   $Mg^{2+}(aq)$ 0.1mol limiting reagent
   $SO_4^{2-}(aq)$ 0.1mol limiting reagent
   $Na^+(aq)$ 0.1mol spectator ion
   $NO_3^-(aq)$ 0.1mol spectator ion

   $Ba^{2+}(aq) + SO_4^{2-}(aq) \rightarrow BaSO_4(s)$ and $Mg^{2+}(aq) + 2OH^-(aq) \rightarrow Mg(OH)_2(s)$

Initial:	0.2mol	0.1mol		0.1mol	0.4mol	
Change:	-0.1mol	-0.1mol	+0.1mol	-0.1mol	-0.2mol	+0.1mol
End:	0.1mol	0mol	0.1mol	0 mol	0.2mol	0.1mol

   b. (2 points) List all the spectator ions in the reaction.

   $Na^+(aq)$, $NO_3^-(aq)$

   c. (2points) Which Ion(s) is (are) limiting reagent?

   $Mg^{2+}(aq)$, $SO_4^{2-}(aq)$

   d. (2 points) Calculate the concentration of $[Na^+]$ in the final solution.

   $[Na^+]=0.1mol/1L = 0.1M$

   $[Na^+] = 0.1M$

   e. (2points extra credit) Calculate the number of moles of precipitate.

   precipitate = ___0.2_____mol

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