

Chem 121, Fall 2009
Test 2A

Multiple Choice (24 pts): Clearly indicate the correct answer in the space provided.

- ___ 1. Which statement below states a true fact?
- A) All acids are strong electrolytes and ionize completely when dissolved in water.
 - B) All bases are weak electrolytes and ionize completely when dissolved in water.
 - C) All bases are strong electrolytes and ionize completely when dissolved in water.
 - D) All salts are strong electrolytes and dissociate completely when dissolved in water.
 - E) All salts are weak electrolytes and ionize partially when dissolved in water.
- ___ 2. In the reaction, $\text{K}_2\text{SO}_4 + \text{Ba}(\text{NO}_3)_2 \rightarrow \text{BaSO}_4(s) + 2 \text{KNO}_3$, which ions are the spectator ions?
- A) Ba^{2+} and SO_4^{2-}
 - B) Ba^{2+} and K^+
 - C) Ba^{2+} and NO_3^-
 - D) K^+ and SO_4^{2-}
 - E) K^+ and NO_3^-
- ___ 3. Which is the net ionic equation for the reaction which takes place when $\text{HC}_2\text{H}_3\text{O}_2(aq)$ is added to $\text{Ba}(\text{OH})_2(aq)$?
- A) $\text{HC}_2\text{H}_3\text{O}_2(aq) + \text{Ba}(\text{OH})_2(aq) \rightarrow \text{Ba}(\text{C}_2\text{H}_3\text{O}_2)_2(aq) + \text{H}_2\text{O}(l)$
 - B) $\text{H}^+(aq) + \text{OH}^-(aq) \rightarrow \text{H}_2\text{O}(l)$
 - C) $\text{HC}_2\text{H}_3\text{O}_2(aq) + \text{OH}^-(aq) \rightarrow \text{C}_2\text{H}_3\text{O}_2^-(aq) + \text{H}_2\text{O}(l)$
 - D) $\text{H}^+(aq) + \text{Ba}(\text{OH})_2(aq) \rightarrow \text{Ba}^{2+}(aq) + \text{H}_2\text{O}(l)$
 - E) $\text{HC}_2\text{H}_3\text{O}_2(aq) + \text{Ba}^{2+}(aq) \rightarrow \text{Ba}(\text{C}_2\text{H}_3\text{O}_2)_2(aq) + \text{H}^+(aq)$
- ___ 4. Which is NOT a strong acid?
- A) HBr
 - B) HCl
 - C) HClO_3
 - D) HF
 - E) HI
- ___ 5. Which compound is insoluble in water?
- A) KNO_3
 - B) $\text{Pb}(\text{NO}_3)_2$
 - C) Na_2SO_4
 - D) PbSO_4
 - E) MgCl_2
- ___ 6. Which set of compounds are all soluble in water?
- A) BaCO_3 , NaBrO_3 , $\text{Ca}(\text{OH})_2$, and PbCl_2
 - B) NaCl , BaCl_2 , NH_4NO_3 , and LiClO_4
 - C) NiCO_3 , PbSO_4 , AgCl , and $\text{Mg}(\text{OH})_2$
 - D) NaCl , AgBr , Na_2CO_3 , and $\text{Hg}_2(\text{NO}_3)_2$
 - E) PbCl_2 , $\text{Pb}(\text{NO}_3)_2$, AgClO_4 , and HgCl_2

11. (10 pts) Calculate the molar mass of $(\text{NH}_4)_2\text{SO}_4$ and determine the percent by mass of nitrogen in the compound.

12. (15 pts) Lead sulfide, in ores, can be assayed by the reaction below. How much PbCrO_4 is produced when 6.95 g PbS is reacted with 0.150L of 0.215 M HNO_3 ? (MM of PbS = 239.3g/mol, MM of PbCrO_4 = 323.2 g/mol)



13. (10 pts) What is the molar concentration of a solution prepared by dissolving 4.10 grams of sodium acetate in enough water to prepare 250.0 mL of the solution? (MM of $\text{NaC}_2\text{H}_3\text{O}_2$ = 82.034 g/mol)

