

\* III-3 \_\_\_\_ C \_\_\_\_ NC  
\*\* III-4 \_\_\_\_ C \_\_\_\_ NC

### Chemistry 130 Worksheet 4

Name: \_\_\_\_\_

\*1. (0.6pt.) Indicate whether the following solutions are acidic, basic, or neutral.

$[H^+] = 6.3 \times 10^{-6} M$  \_\_\_\_\_

$[H^+] = 1.0 \times 10^{-7} M$  \_\_\_\_\_

$[OH^-] = 2.4 \times 10^{-3} M$  \_\_\_\_\_

\*\*2. (0.4pt.) Given the following buffering system  $HCO_3^- \leftrightarrow H^+ + CO_3^{2-}$ , which direction will the reaction shift if the  $[H^+]$  starts to decrease? \_\_\_\_\_

3. (0.6pt.) Given the following concentration, find the indicated concentrations.

A.  $[H^+] = 5.2 \times 10^{-8} M$        $[OH^-] =$  \_\_\_\_\_

B.  $[OH^-] = 4.2 \times 10^{-3} M$        $[H^+] =$  \_\_\_\_\_

4. (0.8pt.) List two properties of acids and two properties of bases.

Acids 1. \_\_\_\_\_ 2. \_\_\_\_\_

Bases 1. \_\_\_\_\_ 2. \_\_\_\_\_

5. (0.6pt.) Give the indicated reactions of the following:



B. Total ionic equation:      \_\_\_\_\_

C. Net ionic equation:      \_\_\_\_\_

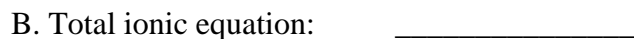
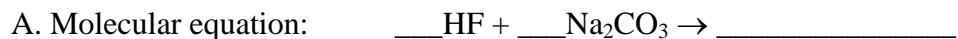
6. (0.6pt.) Give the indicated reactions for the following:



B. Total ionic equation:      \_\_\_\_\_

C. Net ionic equation:      \_\_\_\_\_

7. (0.6pt.) Give the indicated reactions for the following:



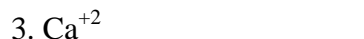
8. (0.8pt.) Circle the weak acids and the weak bases in the following list of acids and bases.



9. (1.2pt.) Matching:

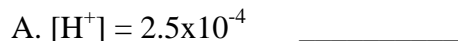
- |                                  |  |
|----------------------------------|--|
| ____ 1. $\text{BaSO}_4$          | A. Found in baking soda.                     |
| ____ 2. $\text{NH}_3$            | B. Household cleaner.                        |
| ____ 3. $\text{Mg}(\text{OH})_2$ | C. Used in X-rays of gastrointestinal tract. |
| ____ 4. $\text{NaHCO}_3$         | D. Meat preservative.                        |
| ____ 5. $\text{NaNO}_2$          | E. Antiseptic and germicide.                 |
| ____ 6. $\text{AgNO}_3$          | F. Found in milk of magnesia.                |

10. (0.8pt.) Calculate the number of grams per equivalent for each of the following.  
(C = 12.0, O = 16.0, P = 31.0, Ca = 40.0, H = 1.0, S = 32.0amu)



11. (1.0pt.) Analysis of a blood sample found the following data:  $\text{Na}^+ = 145\text{meg/L}$ ;  $\text{Cl}^- = 100\text{meg/L}$ ;  $\text{HCO}_3^- = 38\text{meg/L}$ . Calculate the anion gap. Is your value in the normal range? \_\_\_\_\_

12. (0.8pt.) Calculate the pH of the following solutions:



13. (0.6pt.) Indicate whether aqueous solutions of the following salts will be acidic, basic, or neutral.

A.  $\text{NH}_4\text{Cl}$

B.  $\text{K}_2\text{SO}_4$

C.  $\text{NaCN}$

14. (0.6pt.) A. The buffer that works inside the cells is called the \_\_\_\_\_ buffer.

B. The buffer that works in the blood is called the \_\_\_\_\_ buffer.