

* While I prefer you turn in a hard copy of the worksheet, I will accept scanned copies sent to my email address, joensj@fiu.edu

Section: (circle one) M,W,F

Tu,Tr

For problems involving calculations you must show your work for credit. Unless otherwise stated, you may assume $T = 25.0\text{ }^{\circ}\text{C}$.

1) Give the conjugate acid and the conjugate base for NH_3 (ammonia).

conjugate acid _____

conjugate base _____

2) An aqueous solution has $[\text{OH}^-] = 2.7 \times 10^{-4}\text{ M}$. What are the pH and concentration of hydronium ion, $[\text{H}_3\text{O}^+]$, for the solution?

pH = _____

$[\text{H}_3\text{O}^+]$ _____

3) What is the pH for a 0.0375 M aqueous solution of potassium hydroxide (KOH, MW = 56.11 g/mol)?

4) Hypochlorous acid (HOCl , $\text{MW} = 52.46 \text{ g/mol}$) is a weak monoprotic acid, with $K_a = 3.5 \times 10^{-8}$.

a) Give the reaction that occurs when hypochlorous acid is added to water. Identify the Bronsted acid, the conjugate base of the Bronsted acid, the Bronsted base, and the conjugate acid of the Bronsted base.

reaction

Bronsted acid _____

Bronsted base _____

conjugate base _____

conjugate acid _____

b) What is the pH of a 0.062 M aqueous solution of hypochlorous acid?

5) A particular weak base has $\text{p}K_b = 4.47$. What is the numerical value for K_b for the weak base?