OER 14.3

CHE 112 - Homework - Ch 14b
Strong and Weak Acids and Bases

Score: _____/30

Name: _____ Date: _____

[5 pt] 1. What is the pH of a solution made from dissolving 4.80 g of lithium hydroxide in water to give a final volume of 250. mL?

[3 pt] 2. What is the pH of a solution made by diluting a 50.0 mL solution of 0.100 M HCl to a final volume of 1.00L?

[3 pt] 3. Using Appendix H, arrange the following acids in order of increasing strength (lowest to highest): Hydrogen Peroxide (H_2O_2), Nitric Acid (HNO_3), Acetic Acid (CH_3CO_2H), HypochlorousHClO). Explain.

[4 pt] 4. Calculate K_a for HOBr, if the pH of a 0.0400 M solution is 5.05.

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[5 pt] 5. Calculate the pH and concentration of all species (H_3O^+, HCN, CN^-, and OH^-) in a 0.10 M solution of HCN (Hydrocyanic Acid).

[5 pt] 6. Calculate pH and percent dissociation for a 0.0500 M solution of pyridine (C_5H_5N).
$C_5H_5N(aq) + H_2O(l) \rightleftharpoons C_5H_5NH^+(aq) + OH^-(aq)$ $K_b = 1.8 \times 10^{-9}$

[5 pt] 7. A typical aspirin tablet contains 324 mg of acetylsalicylic acid, $C_9H_8O_4$, a monoprotic acid with $k_a = 3 \times 10^{-4}$. If you dissolve two tablets of aspirin in 300 mL of water, what is the pH and percent dissociation?