Name _____ Date _____ Period _____

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8.6 Molecular Structure of Acids and Bases

AP Chemistry

Answer in complete sentences. Use bond strength, polarity, and conjugate base stability in your explanations.

1. Rank the hydrohalic acids HF, HCl, HBr, and HI from weakest to strongest. Explain the trend in terms of bond strength.

2. Rank HClO, $HClO_2$, $HClO_3$, and $HClO_4$ from weakest to strongest. Explain using the number of oxygen atoms.

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3. Acetic acid, CH_3COOH, has $K_a = 1.8 \times 10^{-5}$. Chloroacetic acid, $CH_2ClCOOH$, has $K_a = 1.4 \times 10^{-3}$. Explain why chloroacetic acid is the stronger acid.

4. The compounds CH_4, NH_3, H_2O, and HF are all in Period 2. Which is the strongest acid? Explain using electronegativity.

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