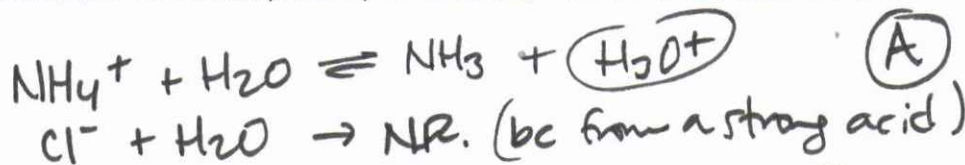


Determine if the following salts will be acidic, basic, or neutral. Write the reaction that justifies your answer.

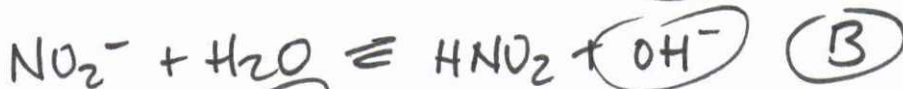
Ammonium chloride



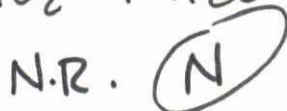
Sodium hypochlorite



Lithium nitrite



Potassium chloride

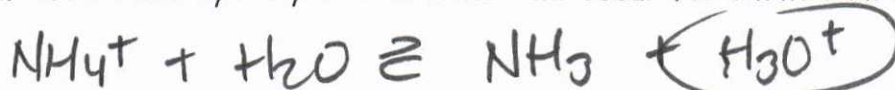


Ammonium bromide



In many salt solutions, both the cation and the anion can undergo hydrolysis and affect the pH of the solution. In these cases, you must compare the k_a and k_b to determine if the solution will be acidic, basic, or neutral.

Ex. Write the hydrolysis reactions that occur for ammonium acetate.



Because both reactions occur, we must determine which reaction occurs to the greater extent. If the k_a is larger than the k_b , then the k_a reaction favors the products more than the k_b reaction. The resulting solution will therefore contain more H_3O^+ and the pH will be < 7 (acid).

Conclusion: If $k_a > k_b$, the salt solution will be acidic.
 If $k_b > k_a$, the salt solution will be basic.
 If $k_a = k_b$, the salt solution will be neutral.

Determine if the following solutions will be acidic, basic, or neutral.

Ammonium fluoride



$$k_a = 5.6 \times 10^{-10}$$

$$k_b = 1.5 \times 10^{-11}$$

($k_a \text{ HF} = 6.8 \times 10^{-4}$)

Ammonium cyanide



$$k_a = 5.6 \times 10^{-10}$$

$$k_b = 1.6 \times 10^{-5}$$

Base