

6.2 - Strength of Acids and Bases.notebook

6.2 Strength of Acids and Bases Assignment

1) List the following acids in order from strongest to weakest.

HI

HNO₃

H₂S

H₂SO₄

HC₂H₃O₂

H₃PO₄

HI, H₂SO₄, HNO₃, HC₂H₃O₂, H₂S, H₃PO₄

2) List all of the polyprotic acids from problem #1.

H₂SO₄, H₂S, H₃PO₄

3) Write the K_a expression for the reaction in which each of the following acts as an acid with water

a) HCN

$$K_a = \frac{[H_3O^+][CN^-]}{[HCN]}$$

b) HPO₄²⁻

$$K_a = \frac{[H_3O^+][PO_4^{3-}]}{[HPO_4^{2-}]}$$

c) HNO₂

$$K_a = \frac{[H_3O^+][NO_2^-]}{[HNO_2]}$$

4) Write the K_b expression for the reaction in which each of the following acts as a base with water

a) HS⁻

$$K_b = \frac{[H_2S][OH^-]}{[HS^-]}$$

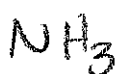
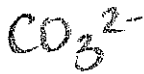
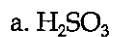
b) CH₃NH₂

$$K_b = \frac{[CH_3NH_2^+][OH^-]}{[CH_3NH_2]}$$

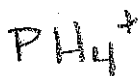
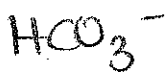
c) F⁻

$$K_b = \frac{[HF][OH^-]}{[F^-]}$$

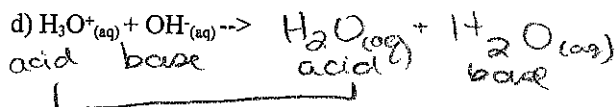
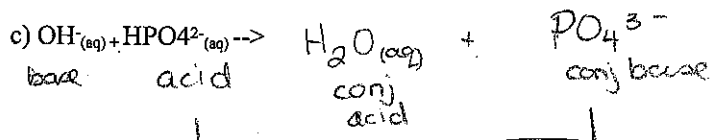
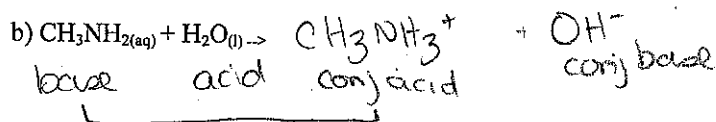
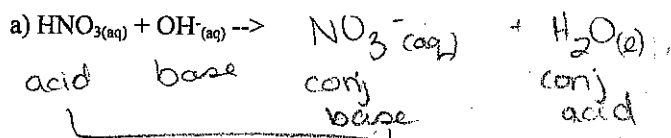
5) Write the formulas for the conjugate base of each of the following acids



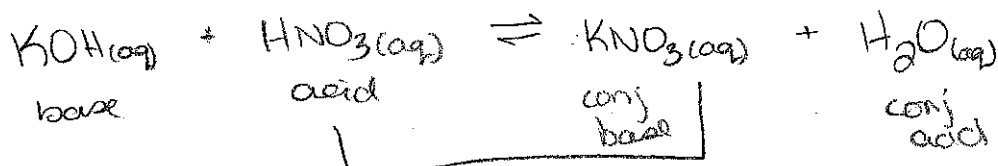
6) Write the formulas for the conjugate acid of each of the following bases.



7) Using your knowledge of the Bronsted-Lowry theory of acids and bases, write equations for the following acid-base reactions and indicate each conjugate acid-base pair



8) Write a balanced chemical equation for the reaction of potassium hydroxide and nitric acid.



neutralization
(double displacement)