Problem Set 7

Reading

Chapter 16.1 - 16.6, 16.11

Exercises

Chapter 16: 17, 26, 29, 31, 35, 44(a,b), 61, 95(b,d)

Additional Exercises

1. Write a chemical reaction that accounts for the acidic nature of Perchloric Acid, HClO₄, in the Arrhenius sense.

2. Hydrogen Phosphate HPO₄²⁻ is amphiprotic. Write a chemical reaction illustrating how this species reacts with H₂O as an acid. Write a chemical reaction illustrating how this species reacts with H₂O as a base. Write the chemical reaction which will result when this species is treated with NaOH. Do the same for what happens if it is treated with HCl.

3. Much as Water does, Ammonia NH₃ autoionizes. Write the products of this autoionization:

   \[ \text{NH}_3 + \text{NH}_3 \overset{\text{ equilibrium}}{\longrightarrow} \]

   Identify the Acid, Base and the Conjugates.