

9.3: Chapter 3

3.1

- O₂ (0)
- H₂O₂ (-1)
- H₂O (-2)

$$E_0 = \frac{0.70 + 1.76}{2} = 1.23 \text{ V}$$

Since the reduction potential is positive, the reaction is spontaneous.

3.2

As the pK_a of the conjugate acids NH₄ is 9.25, and C₅H₅NH⁺ 5.25, ammonia is more protophilic than pyridine and is a stronger base.

3.3

Electronegativities of halogens are in the order F > Cl > Br. A boron trihalide bonded to more electronegative halogens attracts more electrons and the Lewis acidity should become larger. However, opposite tendency is observed and this is considered to be due to π bonding between boron and halogen.

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