

Quiz 10.1 – Acids and Bases

Name: Kory

Question 1

List the six strong acids (some textbooks include a seventh, include it if you wish)

HCl HBr HI H₂SO₄ HNO₃ HClO₄ (HClO₃)

Question 2

Complete the following table of acid/base conjugate pairs

Conjugate Acid	Conjugate Base	Conjugate Acid	Conjugate Base
<u>HNO₃</u>	NO ₃ ⁻	HClO ₂	<u>ClO₂⁻</u>
HCH ₃ CO ₂	<u>CH₃CO₂⁻</u>	<u>HSO₄⁻</u>	SO ₄ ²⁻
H ₂ PO ₄ ⁻	<u>HPO₄²⁻</u>	<u>HF</u>	F ⁻
<u>H₃PO₄</u>	H ₂ PO ₄ ⁻	H ₂ C ₂ O ₄	<u>HC₂O₄⁻</u>

Question 3

HCN has $K_a = 4.9 \times 10^{-10}$ and HCHO₂ has $K_a = 1.8 \times 10^{-4}$. Stronger acid
 Between CN⁻ and CHO₂⁻, which is the stronger base.

CN⁻ is a stronger base than CHO₂⁻

Question 4

Give the pH for a solution with $[H_3O^+] = 3.45 \times 10^{-12} M$

$$pH = -\log 3.45 \cdot 10^{-12} = 11.462$$

Question 5

Find $[OH^-]$ for a solution with $pH = 4.65$

$$pOH = 14 - pH = 9.35$$

$$[OH^-] = 10^{-pOH} = 10^{-9.35} = 4.5 \cdot 10^{-10} M$$