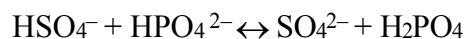1. According to one acid-base theory, water acts as an acid when an H_2O molecule

   A) accepts an H^+ B) donates an H^+

   C) accepts an H^- D) donates an H^-

2. Given the reaction:

   $HSO_4^- + HPO_4^{2-} \leftrightarrow SO_4^{2-} + H_2PO_4$

   Which pair represents an acid and its conjugate base?

   A) HSO_4^- and SO_4^{2-}

   B) HSO_4^- and HPO_4^{2-}

   C) SO_4^{2-} and $H_2PO_4^-$

   D) SO_4^{2-} and HPO_4^{2-}

3. In the reaction

   $NH_3 + H_2O \leftrightarrow NH_4^+ + OH^-$

   A conjugate acid-base pair is

   A) NH_3 and H_2O B) NH_3 and OH^-

   C) H_2O and NH_4^+ D) H_2O and OH^-

4. Given the reaction:

   $H_2O + HCl \leftrightarrow H_3O^+ + Cl^-$
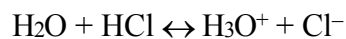
   The Brönsted-Lowry base for the forward reaction is

   A) H_2O B) HCl C) H_3O^+ D) Cl^-

5. Given the equilibrium system:

   $NH_3(aq) + H_2O(\ell) \leftrightarrow NH_4^+(aq) + OH^-(aq)$
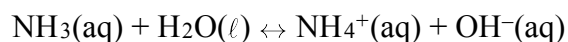
   According to the Brönsted-Lowry theory, the $H_2O(\ell)$ acts as

   A) a base, by receiving a proton

   B) a base, by donating a proton

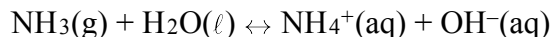   C) an acid, by receiving a proton

   D) an acid, by donating a proton

6. In the reaction $H_2S + NH_3 \leftrightarrow NH_4^+ + HS^-$, the two Brönsted-Lowry bases are

   A) NH_3 and HS^- B) NH_3 and NH_4^+

   C) H_2S and NH_3 D) H_2S and HS^-

7. Which is the conjugate acid of HSO_4^-?

   A) H_2SO_4 B) H_3O^+

   C) HSO_3^- D) SO_4^{2-}

8. Given the reaction:

   $NH_3(g) + H_2O(\ell) \leftrightarrow NH_4^+(aq) + OH^-(aq)$

   Which is the conjugate acid-base pair?

   A) $H_2O(\ell)$ and $NH_4^+(aq)$

   B) $H_2O(\ell)$ and $NH_3(g)$

   C) $NH_3(g)$ and $OH^-(aq)$

   D) $NH_3(g)$ and $NH_4^+(aq)$

9. Given the balanced equation representing a reaction:
   $HCl + H_2O \rightarrow H_3O^+ + Cl^-$

   The water molecule acts as a base because it

   A) donates an H^+ B) accepts an H^+

   C) donates an OH^- D) accepts and OH^-

10. The conjugate base of NH_4^+ is

    A) NH_3 B) OH^-

    C) H_2O D) H_3O^+

11. The conjugate acid of the HS^- ion is

    A) H^+ B) S C) H_2O D) H_2S

12. In the reaction:

    $H_2PO_4 + H_2O \leftrightarrow H_3PO_4 + OH$
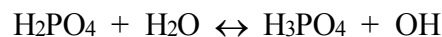
    Which pair represents an acid and its conjugate base?

    A) H_2O and H_2PO_4

    B) H_2O and H_3PO_4

    C) H_3PO_4 and OH^-

    D) H_3PO_4 and $H_2PO_4^-$