

1.
 - a) Chloride ion (Cl^-).
 - b) Carbonate ion (CO_3^{2-}).
 - c) Hydrogenosulfate ion (HSO_4^-).
 - d) Hydrazine (N_2H_4).

2.
 - a) Nitric acid (HNO_3).
 - b) Water (H_2O).
 - c) Hydronium ion (H_3O^+).
 - d) Carbonic acid (H_2CO_3).

6. Note: Question **6 b** should read:
" $\text{Cl}^-_{(\text{aq})} + \text{H}_2\text{O}_{(\text{l})} \rightleftharpoons \text{HCl}_{(\text{aq})} + \text{OH}^-_{(\text{aq})}$ "
 - a) $\text{HS}^-/\text{H}_2\text{S}$ and $\text{H}_2\text{O}/\text{OH}^-$
 - b) Cl^-/HCl and $\text{H}_2\text{O}/\text{OH}^-$
 - c) $\text{H}_2\text{S}/\text{HS}^-$ and $\text{NH}_3/\text{NH}_4^+$
 - d) $\text{H}_2\text{SO}_4/\text{HSO}_4^-$ and $\text{H}_2\text{O}/\text{H}_3\text{O}^+$