1. Identify the species oxidized, the species reduced, the oxidizing agent and the reducing agent in the following electron transfer reaction.

\[ \text{Hg}^{2+} + 2 \text{I}^- \rightarrow \text{Hg} + \text{I}_2 \]

2. What are the oxidation numbers of:

Ni and S in NiSO₄

Cl in ClO₃⁻

3. A student is asked to standardize a solution of potassium hydroxide. He weighs out 0.930 g potassium hydrogen phthalate (KH₂C₆H₄O₄, treat this as a monoprotic acid).

It requires 35.8 mL of potassium hydroxide to reach the endpoint.

A. What is the molarity of the potassium hydroxide solution? \[ \text{M} \]

This potassium hydroxide solution is then used to titrate an unknown solution of hydrochloric acid.

B. If 28.6 mL of the potassium hydroxide solution is required to neutralize 10.8 mL of hydrochloric acid, what is the molarity of the hydrochloric acid solution? \[ \text{M} \]

4. Write net-ionic equations for the following reactions:

NiSO₄ + BaCl₂

HCl + NaCH₃CO₂

HNO₃ + MgCO₃

HBr + CaC₂O₄