The Activity Series

 Consider the partial activity series. Which of the metal(s) can not be oxidized by H⁺ ion?

Which metal(s) can be oxidized by the H^+ ion?

Can the following reaction occur? Why?

 $Co(s) + 2 Ag^+(aq) \rightarrow Co^{2+}(aq) + 2 Ag(s)$

- Which of the following metals will be oxidized by Pb(NO₃)₂: Zn, Cu, Fe?
- 3. Can tin reduce copper (II) ion?
- 4. Write a reaction for the reduction of lead(II) ion with solid zinc.
- 5. Which of the following reactions will not occur?

$$Pt (s) + Ni^{2+} (aq) \rightarrow Pt^{2+} (aq) + Ni (s)$$

$$Mn(s) + Sn^{2+}(aq) \rightarrow Mn^{2+}(aq) + Sn(s)$$

Partial Activity Series

 $Ba (s) \longrightarrow Ba^{2+}(aq) + 2 e^{-}$ $Mg (s) \longrightarrow Mg^{2+}(aq) + 2 e^{-}$ $Zn (s) \longrightarrow Zn^{2+}(aq) + 2 e^{-}$ $Co (s) \longrightarrow Co^{2+}(aq) + 2 e^{-}$ $H_2 (g) \longrightarrow 2H^+ (aq) + 2 e^{-}$ $Ag (s) \longrightarrow Ag^+(aq) + e^{-}$

Activity Series of Metals
in Aqueous Solution
$Li(s) \longrightarrow Li^+(aq) + e^-$
$K(s) \longrightarrow K^+(aq) + e^-$
$Ba(s) \longrightarrow Ba^{2+}(aq) + 2e^{-}$
$Ca(s) \longrightarrow Ca^{2+}(aq) + 2e^{-}$
$Na(s) \rightarrow Na^{+}(aq) + e^{-}$
Mg (s) \longrightarrow Mg ²⁺ (aq) + 2 e ⁻
Al (s) \rightarrow Al ³⁺ (aq) + 3 e ⁻
$Mn(s) \rightarrow Mn^{2+}(aq) + 2e^{-1}$
$Zn(s) \longrightarrow Zn^{2+}(aq) + 2e^{-}$
$Cr(s) \rightarrow Cr^{3+}(aq) + 3e^{-1}$
Fe (s) \rightarrow Fe ²⁺ (aq) + 2 e ⁻
$Co(s) \rightarrow Co^{2+}(aq) + 2e^{-}$
Ni (s) \longrightarrow Ni ²⁺ (aq) + 2 e ⁻
$\operatorname{Sn}(s) \longrightarrow \operatorname{Sn}^{2+}(\operatorname{aq}) + 2 e^{-1}$
$Pb(s) \rightarrow Pb^{2+}(aq) + 2e^{-}$
$H_2(g) \longrightarrow 2H^+(aq) + 2e^-$
$Cu(s) \longrightarrow Cu^{2+}(aq) + 2e^{-}$
$Ag(s) \longrightarrow Ag^{+}(aq) + e^{-}$
$Hg(l) \longrightarrow Hg^{2+}(aq) + 2 e^{-1}$
$Pt(s) \longrightarrow Pt^{2+}(aq) + 2e^{-1}$
$Au(s) \rightarrow Au^{3+}(aq) + 3e^{-1}$