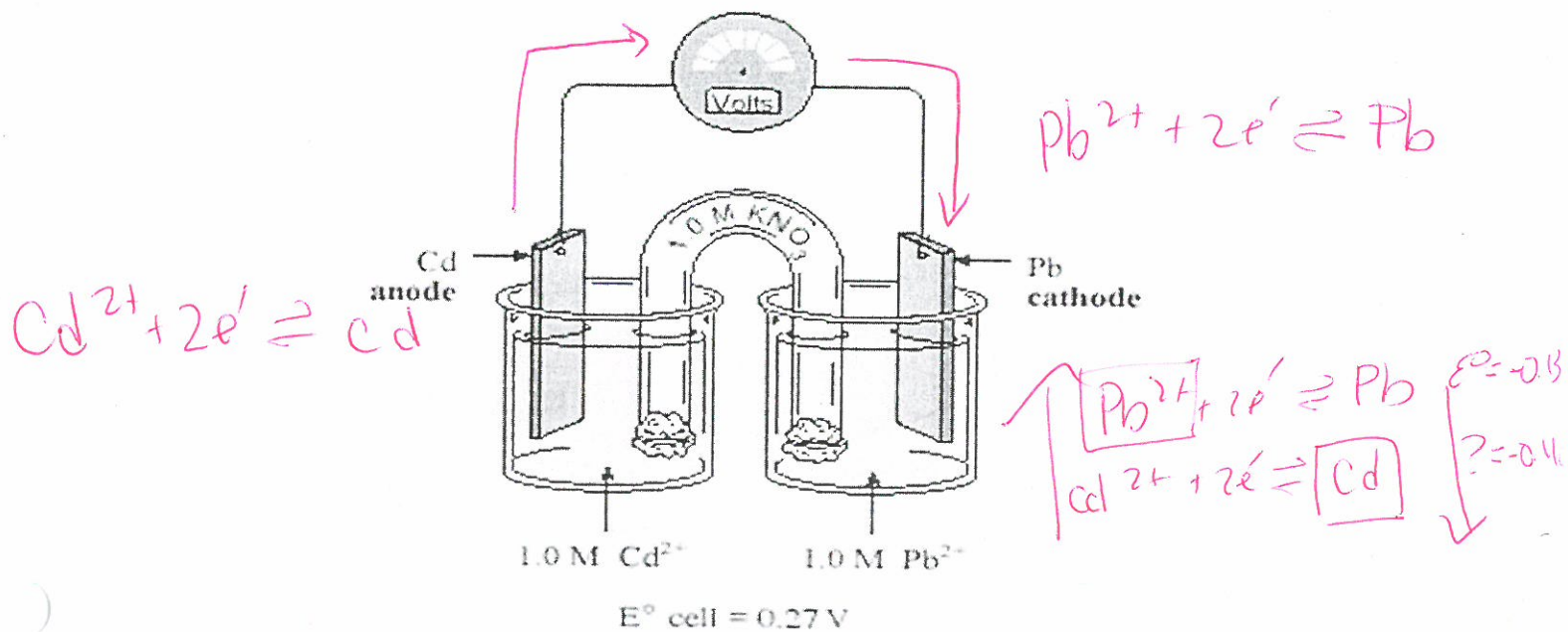


Name: Key
 Pd: _____ Date: _____

Chemistry 12
 ELECTROCHEMICAL CELL WORKSHEET



1. For the above electrochemical cell:

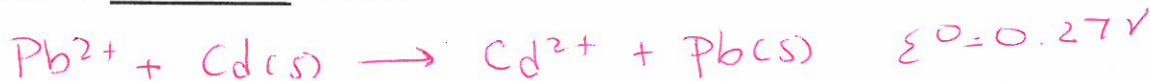
a. Write out the half reaction equation occurring at the anode:



b. Write out the half reaction equation occurring at the cathode:



c. Write out the overall redox reaction:



d. Identify the flow of electrons on the diagram

from Cd to Pb.

e. To which electrode are K⁺, Pb²⁺ and Cd²⁺ attracted? Identify the substance:

cations attracted to cathode ∴ Pb(s)

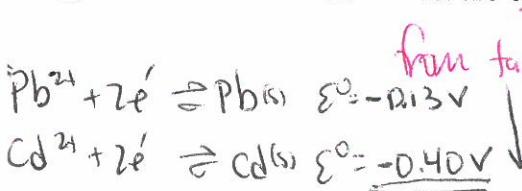
f. To which electrode is NO₃¹⁻ attracted? Identify the substance:

anions attracted to anode ∴ Cd(s)

g. Given that the E⁰ cell = 0.27 V, identify the half reaction E⁰ values:

i. At the anode: E⁰ = -0.40V on table

ii. At the cathode: E⁰ = -0.13V

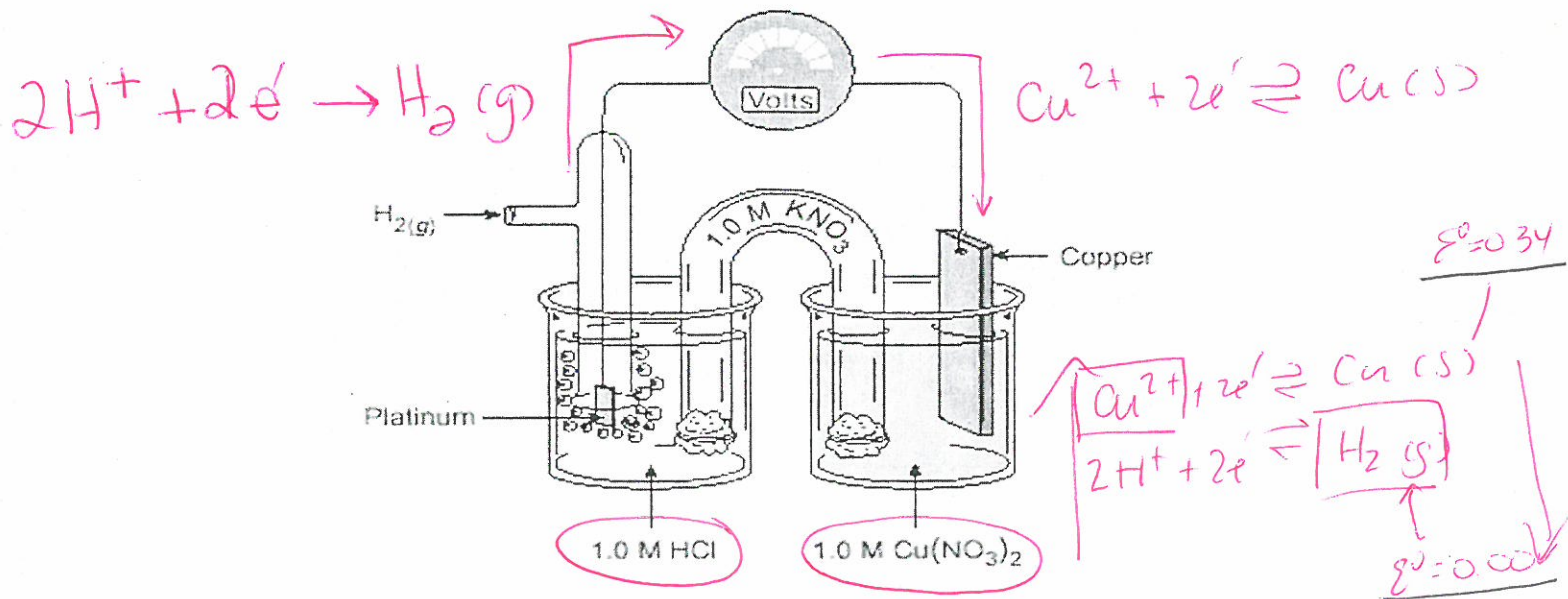


$$\begin{array}{r} E^\circ = -0.13V \\ + x \\ \hline 0.27V \\ \therefore x = +0.40V \end{array}$$

$$E^\circ_{cell} = E^\circ_{red} - E^\circ_{ox}$$

$$0.27V = -0.13V - x$$

$$0.27V + 0.13V = -0.40V$$



2. For the above electrochemical cell:

a. Identify the anode **Platinum (Cu^{2+} inert electrode)**

b. Identify the cathode **$Cu(s)$**

c. Write out the half reaction equation occurring at the anode:



d. Write out the half reaction equation occurring at the cathode:



e. Write out the overall redox reaction and include the E^0 value:



f. Identify the flow of electrons on the diagram

from anode to cathode $\therefore H_2(g) \rightarrow Cu(s)$

g. Which electrode gains in mass? Identify the substance

cathode \therefore copper(s)

h. Which electrode loses mass? Identify the substance

anode \therefore Platinum