Class 14 Covid Chem.

1) a Oxidation #
1) b Reactivity of Metals Series (Activity) Lab

2) Math of Equations Redox = How to Calculate Cell Potentials.

3) Electrochemical Cell (Voltaic / Galvanic Cell)

4) Electrolysis of KI

spectator

$Cu(NO_3)_{2(aq)}$ $Mg(NO_3)_{2(aq)}$ $AgNO_{3(aq)}$

nitrate solns	$Cu^{2+}_{(aq)}$	$Mg^{2+}_{(aq)}$	$Ag^{+}_{(aq)}$
metals	blue		
$Cu_{(s)}$	X		
$Mg_{(s)}$		X	
$Zn_{(s)}$			

elements	Cu^{2+}	Mg^{2+}	Ag^{+}
$Cu_{(s)}$	X	X	+
$Mg_{(s)}$	+	X	+
$Zn_{(s)}$	+	X	+

2. What type of chemical reaction was taking place in each case? $Cu + AgNO_3 \rightarrow$

single disp

lose e^-

3. Which metal reacted with the most solutions i.e. which metal lost electrons most easily?

Mg Why? gp 2A = reactive metals

love to lose $2e^-$

4. Could you have predicted from prior knowledge which metal was going to react with the least number of solutions?

Cu Reason? Cu is used for pipes

for roofs for jewellery. easy to lose e^-

Hi → lo

5. Rank the **4** metals in DECREASING order of reactivity:

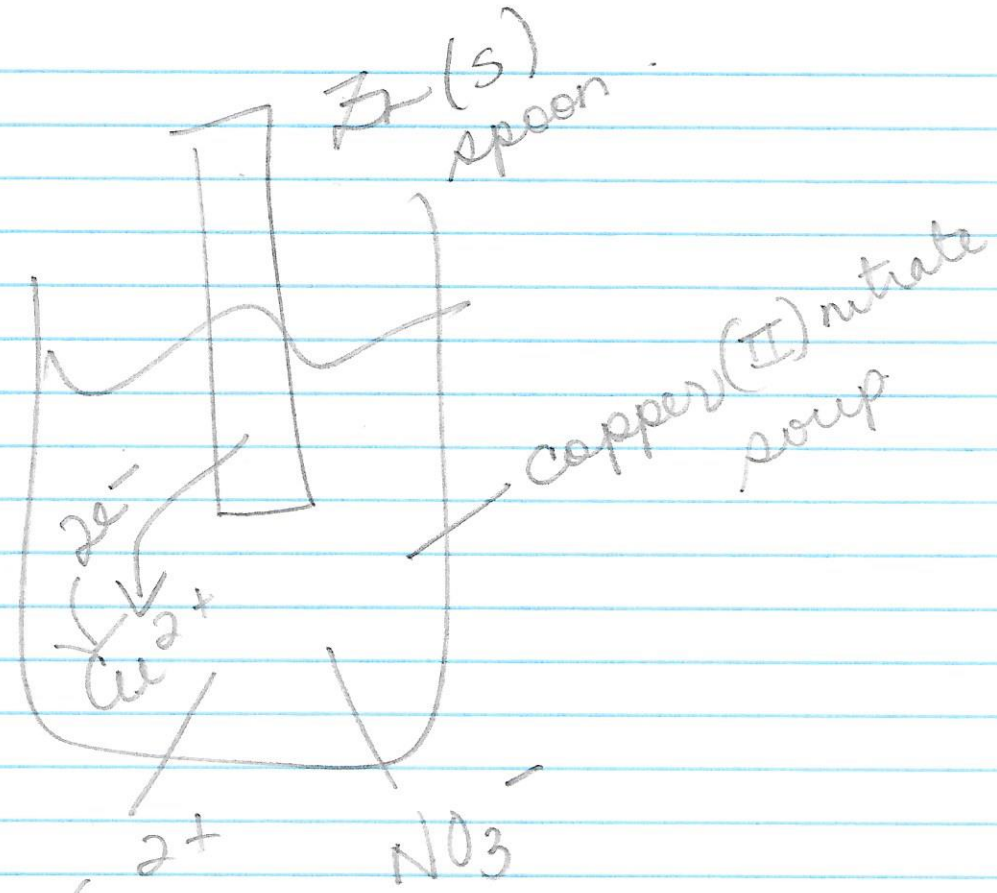
Mg → ____ → ____ → Ag

6. What metal is the Statue of Liberty made with and why?

not stub your toe

7. Given your extensive knowledge of relative chemical activity, which one metal on your list is least likely to be found in an uncombined or "free" state in nature? Why?

Mg Why? ____



spontaneous

$$Zn_{(s)} + Cu(NO_3)_{2(aq)} \rightarrow Zn(NO_3)_{2} + Cu_{(s)}$$

$$\overset{0}{Zn} + \overset{+2}{Cu^{2+}} \rightarrow \overset{+2}{Zn^{2+}} + \overset{0}{Cu}$$

LEO says GER ✗

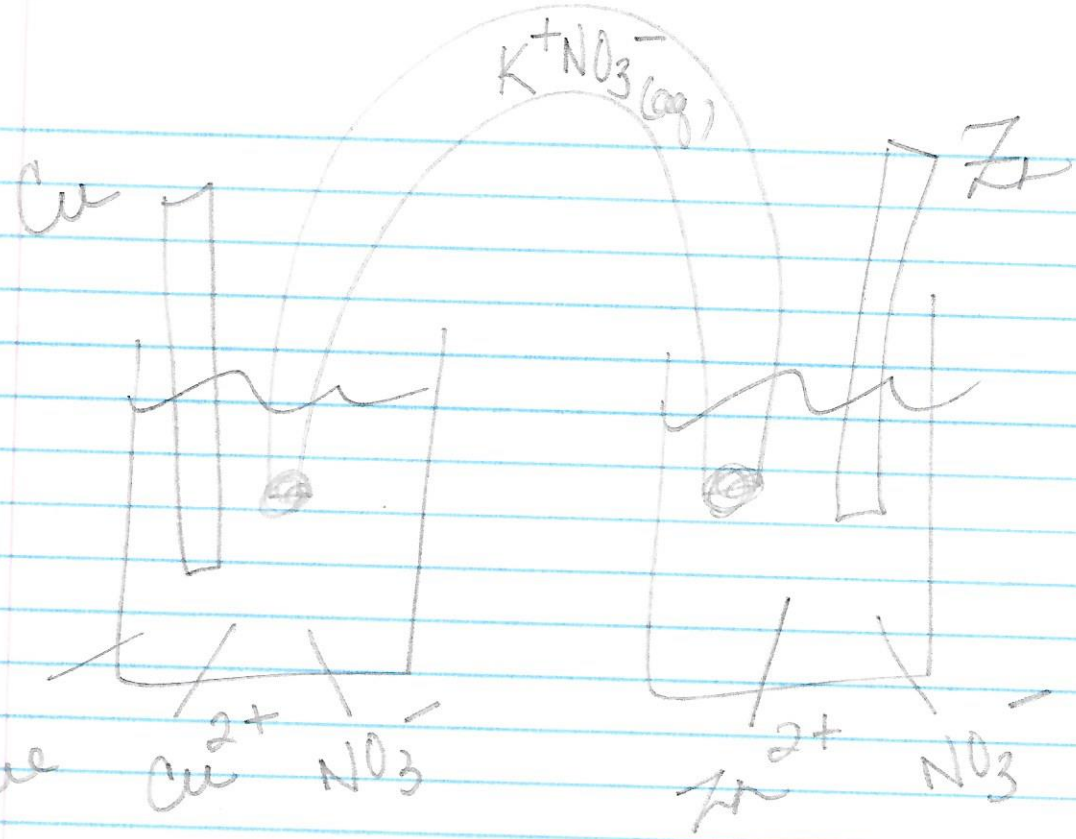
loss 2e⁻

$Zn \rightarrow Zn^{2+}$

-2 -1 0 +1 +2

$Cu \leftarrow Cu^{2+}$

adding -2e⁻


$K^+NO_3^-(aq)$
Cu
Zn
blue
Cu^{2+}
NO_3^-
Zn^{2+}
NO_3^-

XHE exo ✗ on the right
lost

ox 1/2 RX $Zn \rightarrow Zn^{2+} + \cancel{2e^-}$

red 1/2 RX $Cu^{2+} + \cancel{2e^-} \rightarrow Cu$

✗ endo
✗ adding

NE $Zn + Cu^{2+} \rightarrow Zn^{2+} + Cu$ 1.1V

0.8 V

elect energy $2\,K^{+}I^{-}_{(aq)} \rightarrow K_{(s)} + I_2$ metal brownish

KOH base = fuscia

H_2