

Electrochemistry Inquiry

NAME

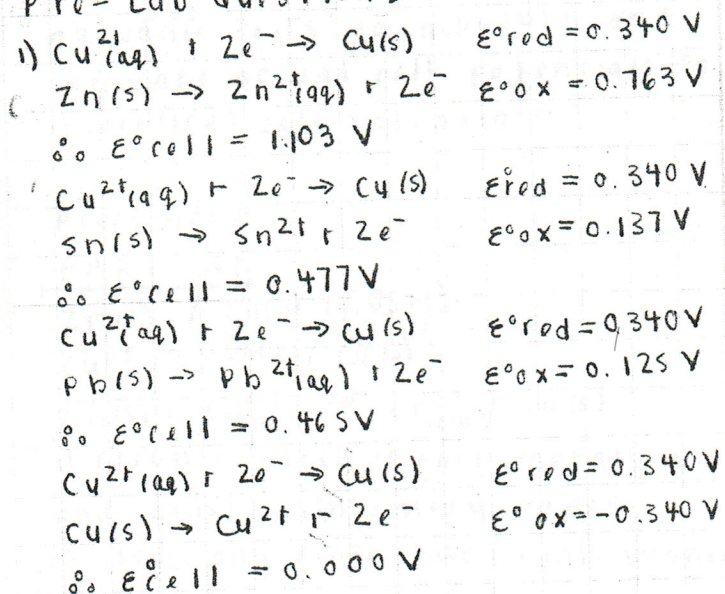
LAB PARTNER

LOCKER/DESK NO.

COURSE & SECTION NO.

Chem 1A03 L69.

Pre-Lab Questions



The above sample calculations were utilized to tabulate the following result:

(aq)	(s)	(V)
Oxidizing Agent	Reducing Agent	Standard Potential
Cu^{2+}	$\text{Zn}(\text{s})$	1.103
Cu^{2+}	$\text{Sn}(\text{s})$	0.477
Cu^{2+}	$\text{Pb}(\text{s})$	0.465
Cu^{2+}	$\text{Cu}(\text{s})$	0.000
Zn^{2+}	$\text{Cu}(\text{s})$	-1.103
Zn^{2+}	$\text{Sn}(\text{s})$	-0.626
Zn^{2+}	$\text{Pb}(\text{s})$	-0.638
Zn^{2+}	$\text{Zn}(\text{s})$	0.000
Sn^{2+}	$\text{Cu}(\text{s})$	-0.477
Sn^{2+}	$\text{Zn}(\text{s})$	0.626
Sn^{2+}	$\text{Pb}(\text{s})$	-0.012
Sn^{2+}	$\text{Sn}(\text{s})$	0.000
Pb^{2+}	$\text{Cu}(\text{s})$	-0.465
Pb^{2+}	$\text{Zn}(\text{s})$	0.638
Pb^{2+}	$\text{Sn}(\text{s})$	0.012
Pb^{2+}	$\text{Pb}(\text{s})$	0.000

2) obtain 5.00 mL of 0.05 M $\text{Cu}^{2+}(\text{aq})$ solution in a beaker using a pipette.

↓

Rinse a volumetric flask with water and fill it with 45 mL of water.

↓

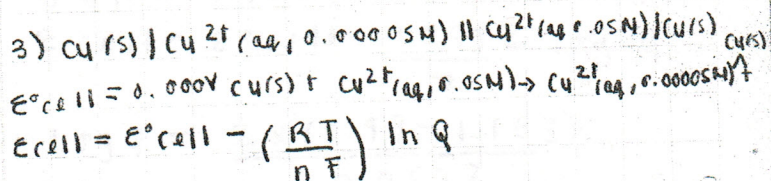
Pour the 5.00 mL of 0.05 M $\text{Cu}^{2+}(\text{aq})$ into the same volumetric flask to make 0.005 M Cu^{2+} solution.

↓

Rinse a second volumetric flask with water and fill it with 49.5 mL of water.

↓

Add 0.5 mL of 0.005 $\text{Cu}^{2+}(\text{aq})$ solution to the volumetric flask to make a 0.00005 M Cu^{2+} solution.



$$= 0 - \left(\frac{(8.314)(298)}{(2)(96,485)} \right) \ln \left(\frac{0.00005 \text{ M}}{0.05 \text{ M}} \right)$$

$$= 0.089$$

4) From the table on the left, the $E^\circ_{\text{cell}} = 1.103 \text{ V}$.

$$E_{\text{cell}} = E^\circ_{\text{cell}} - \frac{0.0592}{2} \log \left[\frac{0.1498}{0.00367} \right]$$

$$= 1.055 \text{ V}$$

SIGNATURE

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WITNESS/TA

DATE