

77) a. $\frac{1000 \text{ g Al}}{26.98 \text{ g Al}} \times \frac{1 \text{ mol Al}}{1 \text{ mol Al}} \times \frac{3 \text{ mole}^-}{1 \text{ mole}^-} \times \frac{96485 \text{ C}}{1 \text{ mole}^-} \times \frac{1 \text{ A}}{100 \text{ C}}$
 $1.073 \times 10^5 \text{ A}$
 29.80 hours

b. $\frac{1.0 \text{ g Ni}}{58.69 \text{ g Ni}} \times \frac{1 \text{ mol Ni}}{1 \text{ mol Ni}} \times \frac{2 \text{ mole}^-}{1 \text{ mole}^-} \times \frac{96485 \text{ C}}{1 \text{ mole}^-} \times \frac{1 \text{ A}}{100.0 \text{ C}}$
 32.8 A

c. $\frac{5 \text{ mol Ag}}{1 \text{ mole Ag}} \times \frac{1 \text{ mole}^-}{1 \text{ mole}^-} \times \frac{96485 \text{ C}}{1 \text{ mole}^-} \times \frac{1 \text{ A}}{100 \text{ C}}$

4824.25 A
 1.34 hours

78) $\frac{10 \text{ g Bi}}{208.98 \text{ g Bi}} \times \frac{1 \text{ mol Bi}}{1 \text{ mole Bi}} \times \frac{3 \text{ mole}^-}{1 \text{ mole}^-} \times \frac{96485 \text{ C}}{1 \text{ mole}^-} \times \frac{1 \text{ A}}{25.0 \text{ C}}$
 554.03 A
 9.23 minutes

79) a. $\frac{1 \text{ hour}}{1 \text{ hour}} \times \frac{3600 \text{ A}}{1 \text{ A}} \times \frac{15 \text{ C}}{96485 \text{ C}} \times \frac{1 \text{ mole}^-}{2 \text{ mole}^-} \times \frac{1 \text{ mol Co}}{1 \text{ mole Co}} \times \frac{58.93 \text{ g Co}}{1 \text{ mole Co}} = 16.49 \text{ g Co}$

b. $\frac{1 \text{ hr}}{1 \text{ hr}} \times \frac{3600 \text{ A}}{1 \text{ A}} \times \frac{15 \text{ C}}{96485 \text{ C}} \times \frac{1 \text{ mole}^-}{4 \text{ mole}^-} \times \frac{1 \text{ mol Hf}}{1 \text{ mole Hf}} \times \frac{178.49 \text{ g Hf}}{1 \text{ mole Hf}} = 26.23 \text{ g Hf}$



$\frac{1 \text{ hr}}{1 \text{ hr}} \times \frac{3600 \text{ A}}{1 \text{ A}} \times \frac{15 \text{ C}}{96485 \text{ C}} \times \frac{1 \text{ mole}^-}{2 \text{ mole}^-} \times \frac{1 \text{ mole I}_2}{1 \text{ mole I}_2} \times \frac{253.8 \text{ g I}_2}{1 \text{ mole I}_2} = 71.02 \text{ g I}_2$

d. $\frac{1 \text{ hr}}{1 \text{ hr}} \times \frac{3600 \text{ A}}{1 \text{ A}} \times \frac{15 \text{ C}}{96485 \text{ C}} \times \frac{1 \text{ mole}^-}{6 \text{ mole}^-} \times \frac{1 \text{ mole Cr}}{1 \text{ mole Cr}} \times \frac{51.996 \text{ g Cr}}{1 \text{ mole Cr}} = 4.85 \text{ g Cr}$

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$$80) \frac{1,000,000 \text{ C}}{2} \times \frac{3600 \text{ s}}{1 \text{ hr}} \times \frac{2 \text{ hr}}{1 \text{ mole}^-} \times \frac{1 \text{ mol Al}}{3 \text{ mole}^-} \times \frac{26.98 \text{ g Al}}{1 \text{ mol Al}} = 6.71 \times 10^5 \text{ g}$$

$$81) \frac{74.1 \text{ s}}{1} \times \frac{2.00 \text{ C}}{1 \text{ s}} \times \frac{1 \text{ mole}^-}{96485 \text{ C}} \times \frac{1 \text{ mole M}}{3 \text{ mole}^-} = 0.000511997 \text{ mol}$$

$$\frac{0.107 \text{ g}}{0.000511997 \text{ mol}} = 208.98 \text{ g/mol}$$

bismuth

$$82) \frac{5 \text{ C}}{1} \times \frac{7482}{96485 \text{ C}} \times \frac{1 \text{ mole}^-}{2 \text{ mole}^-} \times \frac{1 \text{ mol X}}{1 \text{ mole}^-} = 0.019381251 \text{ mol}$$

$$\frac{0.471 \text{ g}}{0.019381251 \text{ mol}} = 24.30 \text{ g/mol}$$



# 89	Cd^{2+}	-0.40
	Ag^{1+}	+0.80
	Au^{3+}	+1.50
	Ni^{2+}	-0.23

The metals will plate out in the following
 order : Au, Ag, Ni, Cd