CH 223
Sample Quiz #5 Name: _____ Lab Section: _____

Be sure to show all work, use the correct number of significant figures, circle final answers and use correct units in all problems.

Question #1: (10 points) This reaction was studied at 25.0 ° ` C: **$P_4O_{10}(s) + 6\ H_2O(l) \rightarrow 4\ H_3PO_4(l)$**

Use the data acquired to **calculate values for ΔH°_{rxn}, ΔS°_{rxn}** and finally **ΔG°_{rxn}.**

Species	ΔH_f°(kJ/mol)	S°(J/K· mol)
$P_4O_{10}(s)$	–2984.0	228.9
$H_2O(l)$	–285.8	69.95
$H_3PO_4(l)$	–1279.0	110.5

Question #2: (5 points) One kind of battery used in watches contains mercury(II) oxide. As current flows, the mercury(II) oxide is reduced to mercury: **$HgO(s) + H_2O(l) + 2\ e^- \rightarrow Hg(l) + 2\ OH^-(aq)$**

If 2.3×10^{-5} amperes flows continuously for 1200 days, what mass of Hg(*l*) is produced?

Question #3: (5 points) Write a balanced chemical equation for the following reaction in an **acidic** solution.

$Cr_2O_7^{2-}(aq) + Ni(s) \rightarrow Cr^{3+}(aq) + Ni^{2+}(aq)$