/100 **Assignment # 6**

Lab (/25)

1. Titration Lab: Write the following:
   - **Purpose:** 2-3 sentences stating why we performed this lab
   - **Observations:** hand in completed lab data sheet
   - **Sample calculations:** for calculations done, do **1 sample calculation** to show how values were determined
   - **Conclusion:** In a paragraph, discuss the following:
     - Lab A-1: % purity you found of the KOH and discuss why the purity of a "tech grade" substance may not be 100%
     - Lab A-2: compare mass content you found in tablets with the value identified on the label
     - Lab A-3: state molar mass and identity of salt you used. Compare with real molar mass & identity.
     - Lab A-4: Compare your 2 answers. Which do you think is more accurate? Why?
     - Lab A-5: state molar mass and identity of the carbonate you used. Compare with real molar mass & identity.
     - Lab A-6: State % ammonia found in commercial cleaner. Compare with value found on container.
     - State any errors or improvements to future labs!

2. **Assign Oxidation numbers** to the elements in bold print. **Answer on this page! (/25)**

a) **Mg**	b) $\mathbf{P}_4$	c) $\mathbf{Cl}^-$	d) H**Cl**	e) **Ca**O
f) $\mathbf{Na}_2O$	g) $\mathbf{Fe}_2O_3$	h) $\mathbf{N}_2O_3$	i) $\mathbf{P}_2O_3$	j) $\mathbf{P}F_3$
k) $\mathbf{S}O_2$	l) $\mathbf{P}Cl_5$	m) $\mathbf{Th}O_2$	n) $\mathbf{C}O_2$	o) **C**O
p) $\mathbf{C}O_3^{2-}$	q) $Ca(\mathbf{V}O_3)_2$	r) $\mathbf{Cl}O^-$	s) Na$\mathbf{Cl}O_2$	t) K$\mathbf{Cl}O_3$
u) $K_2\mathbf{Cr}O_4$	v) $Na_2\mathbf{Cr}_2O_7$	w) $\mathbf{S}O_3^{2-}$	x) **N**O	y) $\mathbf{N}O_2$

3. **Balance** the following eq'ns taking place using oxidation #'s. **Put final answer on this page!** Attach work on a separate page. (3 marks each = /30)

a) $MnO_4^- + Fe^{2+} + H^+ \rightarrow Mn^{2+} + Fe^{3+} + H_2O$

b) $Cr_2O_7^{2-} + Fe^{2+} + H^+ \rightarrow Cr^{3+} + Fe^{3+} + H_2O$

c) $SO_4^{2-} + Cu + H^+ \rightarrow Cu^{2+} + SO_2 + H_2O$

d) $H_2SO_3 + Fe^{3+} + H_2O \rightarrow Fe^{2+} + SO_4^{2-} + H^+$

e) $KMnO_4 + HCl \rightarrow KCl + MnCl_2 + Cl_2 + H_2O$

f) $CaC_2O_4 + KMnO_4 + H_2SO_4 \rightarrow CaSO_4 + K_2SO_4 + MnSO_4 + H_2O + CO_2$

g) $I_2 + HNO_3 \rightarrow HIO_3 + NO_2 + H_2O$

h) $K_2Cr_2O_7 + HCl \rightarrow KCl + CrCl_3 + Cl_2 + H_2O$

i) $Sb_2(SO_4)_3 + KMnO_4 + H_2O \rightarrow H_3SbO_4 + K_2SO_4 + MnSO_4 + H_2SO_4$

j) $KIO_3 + KI + HCl \rightarrow KCl + I_2 + H_2O$

4. **Balance** the following eq'ns taking place using half-reaction method. **Put final answer on this page!** Attach work on a separate page. (5 marks 3ach = /20)

a) $O_3 + I^- \rightarrow IO_3^- + O_2$

b) $Pt + NO_3^- + Cl^- \rightarrow PtCl_6^{2-} + NO_2$

c) $CN^- + ClO_2^- \rightarrow CNO^- + Cl^-$

d) $MnO_4^- + I^- \rightarrow I_2 + Mn^{+2+}$