CHM 130:
Redox Practice Problems

1. Determine the charge for each of the following:

a. O_2:	O: ____		g.	NH_3:	N: ____	H: ____
b. Al_2S_3:	Al: ____	S: ____	h.	PbO_2:	Pb: ____	O: ____
c. P_4:	P: ____		i.	HBr:	H: ____	Br: ____
d. Cd_3N_2:	Cd: ____	N: ____	j.	K(s):	K: ____	
e. $MgCl_2$:	Mg: ____	Cl: ____	k.	H_2S:	H: ____	S: ____
f. Na(s):	Na: ____		l.	I_2:	I: ____	

2. For each of the following, Balance the equation, Identify the reactant oxidized and the reactant reduced.

A. ____ HCl (aq) + ____Zn (s) → ____H_2 (g) + ____$ZnCl_2$ (aq)

B. ____ $CuCl_2$ (aq) + ____ Al (s) → ____ Cu (s) + ____ $AlCl_3$ (aq)

C. ____ Na (s) + ____Cl_2 (g) → ____ NaCl (s)

D. ____ HBr (aq) + ____Mg (s) → ____H_2 (g) + ____$MgBr_2$ (aq)

E. ____ Fe (s) + ____ O_2 (g) → ____ Fe_2O_3 (s)

F. ____ $AlCl_3$ (aq) + ____ Mg (s) → ____ Al (s) + ____ $MgCl_2$ (aq)

CHM 130:
Redox Practice Problems Key

1. Determine the charge for each of the following:

a. O_2:	O: 0		g. NH_3:	N: -3	H: +1
b. Al_2S_3:	Al: +3	S: –2	h. PbO_2:	Pb: +4	O: –2
c. P_4:	P: 0		i. HBr:	H: +1	Br: –1
d. Cd_3N_2:	Cd: +2	N: –3	j. K:	K: 0	
e. $MgCl_2$:	Mg: +2	Cl: –1	k. H_2S:	H: +1	S: –2
f. Na:	Na: 0		l. I_2:	I: 0	

2. For each of the following, Balance the equation, Identify the reactant oxidized and the reactant reduced.

+1 | -1 0 0 +2 | -1

A. $2\ HCl\ (aq) + Zn\ (s) \rightarrow H_2\ (g) + ZnCl_2\ (aq)$

H^{+1} in HCl(aq) is the reactant reduced.

Zn(s) is the reactant oxidized.

+2 | -1 0 0 +3 | -1

B. $3\ CuCl_2\ (aq) + 2\ Al\ (s) \rightarrow 3\ Cu\ (s) + 2\ AlCl_3\ (aq)$

Cu^{2+} in $CuCl_2$ (aq) is the reactant reduced.

Al(s) is the reactant oxidized.

0 0 +1 | -1

C. $2\ Na\ (s) + Cl_2\ (g) \rightarrow 2\ NaCl\ (s)$

Cl_2 (g) is the reactant reduced.

Na(s) is the reactant oxidized.

+1 | -1 0 0 +2 | -1

D. $2\ HBr\ (aq) + Mg\ (s) \rightarrow H_2\ (g) + MgBr_2\ (aq)$

H^{+1} in HBr(aq) is the reactant reduced.

Mg(s) is the reactant oxidized.

0 0 +3 | -2

E. $4\ Fe\ (s) + 3\ O_2\ (g) \rightarrow 2\ Fe_2O_3\ (s)$

O_2(g) is the reactant reduced.

Fe(s) is the reactant oxidized.

+3 | -1 0 0 +2 | -1

F. $2\ AlCl_3\ (aq) + 3\ Mg\ (s) \rightarrow 2\ Al\ (s) + 3\ MgCl_2\ (aq)$

Al^{3+} in $AlCl_3$(aq) is the reactant reduced.

Mg(s) is the reactant oxidized.