REDUCTION/OXIDATION EXERCISES

1) What is the O.N. of the atoms in the following **elements?**

a) Cl_2 **b)** O_2 **c)** H_2 **d)** Fe **e)** Zn **f)** C

2) What is the O.N. of the atoms in the following **monatomic ions?**

a) Cl^- **b)** O^{2-} **c)** H^+ **d)** Fe^{3+} **e)** Zn^{2+} **f)** Fe^{3+}

3) What is the O.N. of the Bolded atoms in the following **molecules?**

a) $\mathbf{H}_2O$ **b)** H**Cl**

c) $\mathbf{C}H_4$ **d)** $\mathbf{C}Cl_4$

4) What is the O.N. of the Bolded atoms in the following **polyatomic ions?**

a) $\mathbf{N}O_3^-$ **b)** $\mathbf{S}O_4^{2-}$

c) O**H**$^-$ **d)** $\mathbf{C}O_3^{2-}$

e) $\mathbf{S}O_3^{2-}$ **f)** $\mathbf{P}O_4^{3-}$

5) Write the oxidation numbers above the atoms in the following equations and identify the atom being oxidised and the atom being reduced.

a) $\mathbf{Cr_2O_7^{2-} + SO_2 \rightarrow Cr^{3+} + SO_4^{2-}}$

Atom oxidised: _____ Atom reduced: _____

b) $\mathbf{NO_3^- + Cu \rightarrow Cu^{2+} + NO_2}$

Atom oxidised: _____ Atom reduced: _____

c) $\mathbf{Fe^{2+} + H_2O_2 \rightarrow Fe^{3+} + H_2O}$

Atom oxidised: _____ Atom reduced: _____

6) From the equations in exercise 7 identify the **reductant** and the **oxidant**.

a) oxidant: _____ reductant: _____

b) oxidant: _____ reductant: _____

c) oxidant: _____ reductant: _____