

C1401 Tutorial 5

- Determine the oxidation number of each of the following elements in the compound indicated
 - B in B_2O_2
 - C in CF_4
 - Cl in HCl
 - P in P_4O_{10}
 - N in HNO_3 , $HONO_2$
 - S in SO_2Cl_2
 - N in N_2H_4
- In the following reaction, identify the substance oxidized, the substance reduced, the oxidizing agent and the reducing agent.
 - $2KMnO_4 + 5H_2C_2O_4 + 3H_2SO_4 \rightarrow 10CO_2 + K_2SO_4 + 2MnSO_4 + 8H_2O$
 - $NaI + 3HOCl \rightarrow NaIO_3 + 3HCl$
 - $Cu + 2H_2SO_4 \rightarrow CuSO_4 + SO_2 + 2H_2O$
 - $I_2 + 10HNO_3 \rightarrow 2HIO_3 + 10NO_2 + 4H_2O$
 - $Cr_2O_7^{2-} + Fe^{2+} \rightarrow Cr^{3+} + Fe^{3+}$
- Balance the following redox reaction equations.
 - $Zn + HNO_3 \rightarrow Zn^{2+} + N_2$
 - $H_2SO_4 + HBr \rightarrow SO_2 + Br_2$
 - $MnO_4^- + NO_2^- \rightarrow MnO_2 + NO_3^-$
- Complete and balance the following redox equations.
 - $Ag^+ + AsH_3 \rightarrow Ag + H_3AsO_3$ (acidic solution)
 - $Br_2 \rightarrow BrO_3^- + Br^-$ (basic solution)
 - $C_2H_4 + MnO_4^- \rightarrow Mn^{2+} + CO_2$ (acidic solution)
 - $CN^- + MnO_4^- \rightarrow CNO^- + MnO_2$ (basic solution)
 - $Pb(N_3)_2 + Cr(MnO_4)_2 \rightarrow Cr_2O_3 + MnO_2 + Pb_3O_4 + NO$ (in basic solution)