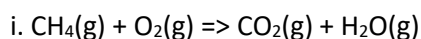


For each of the following reactions identify the redox reactions and give the reductant and oxidant in each



Find the oxidation number of each element in the reactants.

$$\text{C} = -4,$$

$$\text{H} = +1,$$

$$\text{O} = 0$$

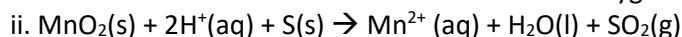
Find the oxidation number of each element in the products.

$$\text{C} = +4,$$

$$\text{H} = +1,$$

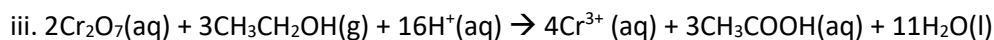
$$\text{O} = -2$$

Reductant is the CH_4 where as the oxidant is the oxygen (O_2)



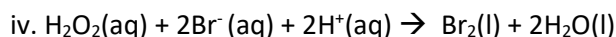
Mn in $\text{MnO}_2 = +4 \Rightarrow \text{Mn}^{2+} = +2$ therefore Mn is reduced. MnO_2 is the oxidant

S is in its elemental form hence = 0 \Rightarrow S in $\text{SO}_2 = +4$ therefore S is oxidised. S is the reductant



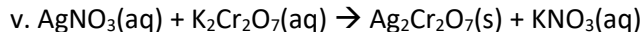
Cr in Cr_2O_7 has an oxidation state of +7 $\Rightarrow \text{Cr}^{3+} = +3$ therefore it is reduced. Cr_2O_7 is the oxidant

C in $\text{CH}_3\text{CH}_2\text{OH}$ has an oxidation state of -2 \Rightarrow C in CH_3COOH is 0 therefore C is oxidised. $\text{CH}_3\text{CH}_2\text{OH}$ is the reductant

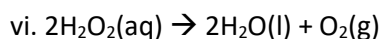


O in $\text{H}_2\text{O}_2 = -1 \Rightarrow$ O in $\text{H}_2\text{O} = -2$ therefore it is reduced. H_2O_2 is the oxidant

$\text{Br}^- = -1 \Rightarrow \text{Br}_2$ is in its elemental form = 0 it is oxidised. Br^- is the reductant.



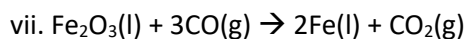
There is no change in the oxidation state of any of the reactants. This is not a redox reaction but a precipitation reaction. Ag in AgNO_3 is +1 and is also +1 in $\text{Ag}_2\text{Cr}_2\text{O}_7$. There is no change in K it is +1 in $\text{K}_2\text{Cr}_2\text{O}_7$ and in KNO_3 . Oxygen, hydrogen, Chromium and nitrogen all have unchanged oxidation states.



O in $\text{H}_2\text{O}_2 = -1 \Rightarrow$ O in $\text{H}_2\text{O} = -2$ therefore it is reduced. H_2O_2 is the oxidant

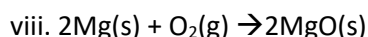
O in $\text{H}_2\text{O}_2 = -1 \Rightarrow$ O in $\text{O}_2 = 0$ as its in elemental form, therefore it is oxidised. H_2O_2 is the reductant.

H_2O_2 is both the reductant and the oxidant.



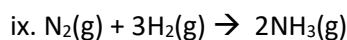
Fe in $\text{Fe}_2\text{O}_3 = +3 \Rightarrow \text{Fe}(\text{l}) = 0$ is in its elemental form, therefore it is reduced. Fe_2O_3 is the oxidant

C in $\text{CO} = +2 \Rightarrow$ C in $\text{CO}_2 = +4$ therefore it is oxidised. CO is the reductant



$\text{Mg}(\text{s}) = 0$ it is in elemental form \Rightarrow Mg in $\text{MgO} = +2$, therefore it is oxidised. Mg is the reductant

O in $\text{O}_2 = 0$ it is in elemental form \Rightarrow O in $\text{MgO} = -2$, therefore it is reduced. O_2 is the oxidant



N in $\text{N}_2 = 0$, it is in elemental form \Rightarrow N in $\text{NH}_3 = -3$, therefore it is reduced. N_2 is the oxidant

H in $\text{H}_2 = 0$ it is in elemental form \Rightarrow H in $\text{NH}_3 = +1$ it is oxidised. H_2 is therefore the reductant.