

Chem!stry

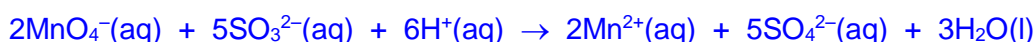
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Ionic Equations for Redox Reactions – Answers

Question 1:



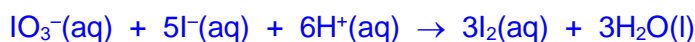
$\text{MnO}_4^-(\text{aq})$ is the oxidising agent. $\text{SO}_3^{2-}(\text{aq})$ is the reducing agent.

Question 2:



$\text{Fe}^{2+}(\text{aq})$ has been oxidised to Fe^{3+} . Mn in $\text{MnO}_4^-(\text{aq})$ has been reduced from +7 to +2.

Question 3:

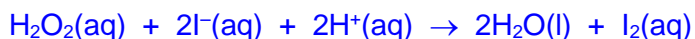
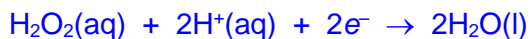


$\text{IO}_3^-(\text{aq})$ is the oxidising agent. $\text{I}^-(\text{aq})$ is the reducing agent.

Question 4:

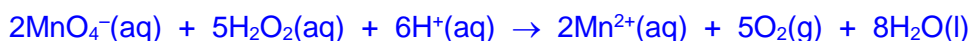
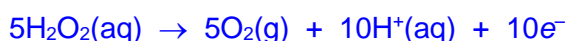


The S in $\text{SO}_3^{2-}(\text{aq})$ has been oxidised from +4 to +6. The Cr in $\text{Cr}_2\text{O}_7^{2-}(\text{aq})$ has been reduced from +6 to +3.

Question 5:

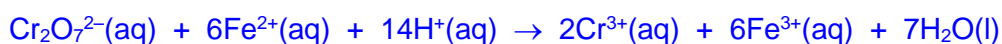
O in $\text{H}_2\text{O}_2(\text{aq}) = -1$

$\text{H}_2\text{O}_2(\text{aq})$ is the oxidising agent. $\text{I}^-(\text{aq})$ is the reducing agent.

Question 6:

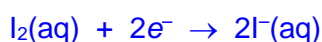
$\text{Mn}^{2+}(\text{aq}) = +2$

The O in $\text{H}_2\text{O}_2(\text{aq})$ has been oxidised from -1 to 0 . The Mn in $\text{MnO}_4^-(\text{aq})$ has been reduced from $+7$ to $+2$.

Question 7:

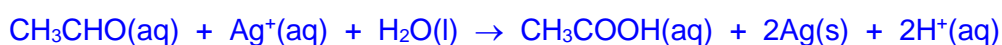
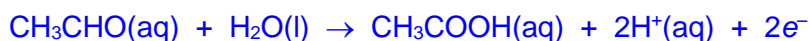
$\text{Cr}^{3+}(\text{aq}) = +3$

$\text{Cr}_2\text{O}_7^{2-}(\text{aq})$ is the oxidising agent. $\text{Fe}^{2+}(\text{aq})$ is the reducing agent.

Question 8:

S in $\text{S}_2\text{O}_3^{2-}(\text{aq}) = +2$ $\text{S}_4\text{O}_6^{2-}(\text{aq}) = +2.5$

The S in $\text{S}_2\text{O}_3^{2-}(\text{aq})$ has been oxidised from $+2$ to $+2.5$. The I in $\text{I}_2(\text{aq})$ has been reduced from 0 to -1 .

Question 9:

The average oxidation number for the two carbon atoms = -1

$\text{Ag}^+(\text{aq})$ is the oxidising agent. $\text{CH}_3\text{CHO}(\text{aq})$ is the reducing agent.

Question 10:

As an *oxidising agent* (the hydrogen peroxide is reduced): $\text{H}_2\text{O}_2(\text{aq}) + 2\text{e}^- + 2\text{H}^+(\text{aq}) \rightarrow 2\text{H}_2\text{O}(\text{l})$

As a *reducing agent* (the hydrogen peroxide is oxidised): $\text{H}_2\text{O}_2(\text{aq}) \rightarrow \text{O}_2(\text{g}) + 2\text{H}^+(\text{aq}) + 2\text{e}^-$