

# Chem!stry

Name: ..... ( )

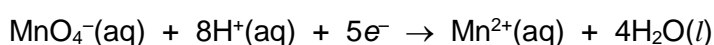
Class: .....

Date: ..... / ..... / .....

## Ionic Equations for Redox Reactions

- Balance the number of electrons between the two ionic half-equations and then combine the two ionic half-equations together to create the overall ionic equation for the reaction.

### Question 1:

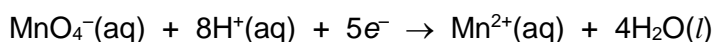


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What is the oxidation state of S in  $\text{SO}_3^{2-}(\text{aq})$  ? ..... and in  $\text{SO}_4^{2-}(\text{aq})$  ? .....

What is the oxidising agent? ..... What is the reducing agent? .....

### Question 2:

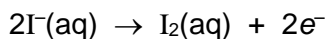
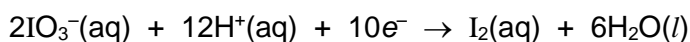


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What is the oxidation state of Mn in  $\text{MnO}_4^-(\text{aq})$  ? ..... and in  $\text{Mn}^{2+}(\text{aq})$  ? .....

What has been oxidised? ..... What has been reduced? .....

### Question 3:

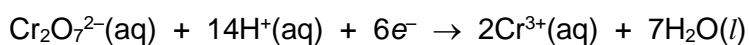


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What is the oxidation state of I in  $\text{IO}_3^-(\text{aq})$  ? ..... and in  $\text{I}_2(\text{aq})$  ? .....

What is the oxidising agent? ..... What is the reducing agent? .....

### Question 4:

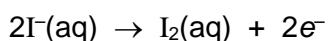
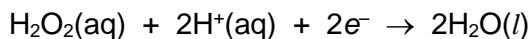


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What is the oxidation state of Cr in  $\text{Cr}_2\text{O}_7^{2-}(\text{aq})$  ? .....

What has been oxidised? ..... What has been reduced? .....

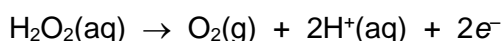
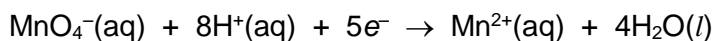
**Question 5:**



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What is the oxidation state of O in  $\text{H}_2\text{O}_2(\text{aq})$  ? .....

What is the oxidising agent? ..... What is the reducing agent? .....

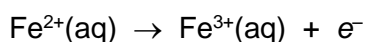
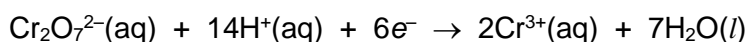
**Question 6:**



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What is the oxidation state of Mn in  $\text{Mn}^{2+}(\text{aq})$  ? .....

What has been oxidised? ..... What has been reduced? .....

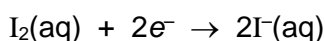
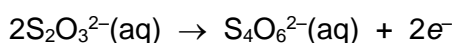
**Question 7:**



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What is the oxidation state of Cr in  $\text{Cr}^{3+}(\text{aq})$  ? .....

What is the oxidising agent? ..... What is the reducing agent? .....

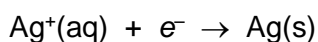
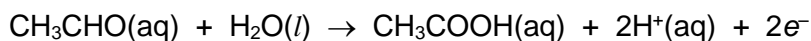
**Question 8:**



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What is the oxidation state of S in  $\text{S}_2\text{O}_3^{2-}(\text{aq})$  ? ..... and  $\text{S}_4\text{O}_6^{2-}(\text{aq})$  ? .....

What has been oxidised? ..... What has been reduced? .....

**Question 9:**



.....  
What is the oxidation state of C in  $\text{CH}_3\text{CHO}(\text{aq})$  ? .....

What is the oxidising agent? ..... What is the reducing agent? .....

**Question 10:**

a) Write an ionic half-equation to show hydrogen peroxide acting as an *oxidising agent*.

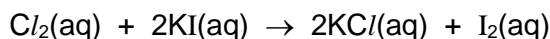
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b) Write an ionic half-equation to show hydrogen peroxide acting as a *reducing agent*.

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**Question 11:**

Deduce the two ionic half-equations for the following chemical reaction. Start by writing the ionic equation for the reaction.



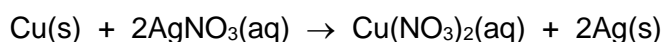
Ionic equation: .....

Ionic half-equation #1: .....

Ionic half-equation #2: .....

**Question 12:**

Deduce the two ionic half-equations for the following chemical reaction. Start by writing the ionic equation for the reaction.



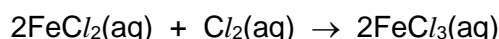
Ionic equation: .....

Ionic half-equation #1: .....

Ionic half-equation #2: .....

**Question 13:**

Deduce the two ionic half-equations for the following chemical reaction. Start by writing the ionic equation for the reaction.



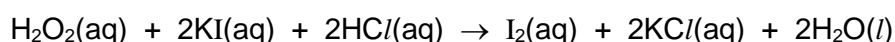
Ionic equation: .....

Ionic half-equation #1: .....

Ionic half-equation #2: .....

**Question 14:**

Deduce the two ionic half-equations for the following chemical reaction. Start by writing the ionic equation for the reaction.



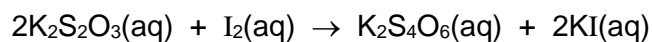
Ionic equation: .....

Ionic half-equation #1: .....

Ionic half-equation #2: .....

**Question 15:**

Deduce the two ionic half-equations for the following chemical reaction. Start by writing the ionic equation for the reaction.



Ionic equation: .....

Ionic half-equation #1: .....

Ionic half-equation #2: .....

- Scan the QR code below for the answers to this assignment.



[http://www.chemist.sg/redox/ionic\\_equations\\_ans.pdf](http://www.chemist.sg/redox/ionic_equations_ans.pdf)