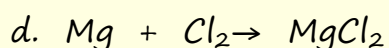
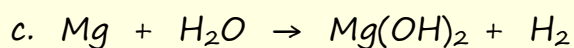
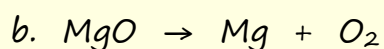
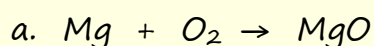


Metal Reactivity

Answer all the questions below then check your answers

1. Which of the following equation(s) represents the oxidation of magnesium?



2. Fill in the gaps to complete the sentences below:

a. Oxidation is the _____ of electrons.

b. Reduction is the _____ of electrons.

c. In a redox reaction, one substance is oxidized and another is _____.

3. Based on the position of the metals in the reactivity series match the metals with their reactivity when reacting with water:

Metal	Reaction with Water
Sodium	Reacts slowly with steam
Calcium	Reacts vigorously with cold water
Iron	Reacts slowly with cold water
Magnesium	Reacts vigorously with steam

4. Define oxidation and reduction in terms of electron transfer.
5. Write a balanced chemical equation to show the reaction of potassium with water.
6. Write word and balanced symbolic equations for the following reactions:
 - a. Magnesium reacting with oxygen.
 - b. Calcium reacting with water.

7. When a piece of shiny bronze coloured copper metal is held in a Bunsen flame for a few seconds its colour changes to black as it forms copper oxide (CuO)



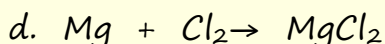
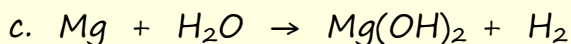
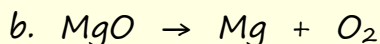
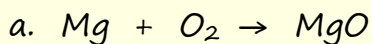
a. What type of reaction is taking when the copper metal changes colour in the Bunsen flame?

b. Write a word and balanced symbolic equation for this reaction.



Answers

1. Which of the following equation(s) represents the oxidation of magnesium?



Answer: a and c, since in both the magnesium atom will lose 2 electrons to form a Mg^{2+} ion.

2. Fill in the gaps to complete the sentences below:

a. Oxidation is the _____ of electrons.

b. Reduction is the _____ of electrons.

c. In a redox reaction, one substance is oxidized and another is _____.

Answers:

Oxidation is the loss of electrons.

Reduction is the gain of electrons.

In a redox reaction, one substance is oxidized and another is reduced.

3. Based on the position of the metals in the reactivity series match the metals with their reactivity when reacting with water:

Metal	Reaction with Water
Sodium	Reacts slowly with steam

Metal	Reaction with Water
Calcium	Reacts vigorously with cold water
Iron	Reacts slowly with cold water
Magnesium	Reacts vigorously with steam

4. Define oxidation and reduction in terms of electron transfer.

Answer: Oxidation is the process of losing electrons, while reduction is the process of gaining electrons.

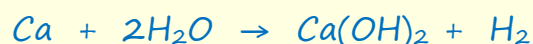
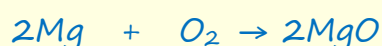
5. Write a balanced chemical equation to show the reaction of potassium with water.

Answer: $2K + 2H_2O \rightarrow 2KOH + H_2$

6. Write word and balanced symbolic equations for the following reactions:

- Magnesium reacting with oxygen.
- Calcium reacting with water.

Answers:



7. When a piece of shiny bronze coloured copper metal is held in a Bunsen flame for a few seconds its colour changes to black as it forms copper oxide (CuO)
- What type of reaction is taking when the copper metal changes colour in the Bunsen flame?

Answer: Redox reaction, the copper metal is oxidised and the oxygen gas is reduced.

b. Write a word and balanced symbolic equation for this reaction.

Copper + oxygen → copper oxide

