SmartKalike

CBSE Class 10 · Science

Chemical Reactions and Equations

10 most probable questions for Boards 2027

Q1. 1 mark · Multiple choice

Which is the skeletal chemical equation for the burning of magnesium in air?

(A) $Mg + O_2 \rightarrow MgO$

(B) $2Mg + O_2 \rightarrow 2MgO$

(C) $Mg + O \rightarrow MgO$

(D) $MgO \rightarrow Mg + O_2$

Answer

(A) $Mg + O_2 \rightarrow MgO$ — it is the skeletal chemical equation for the burning of magnesium in air.

Q2. 2 marks · Short answer

How do chemical formulae make a chemical equation a more concise representation of a reaction than a word equation?

Answer

Chemical formulae replace substance names with symbols, making chemical equations more concise and useful than word-equations. For example, magnesium + oxygen → magnesium oxide becomes $Mg + O_2 \rightarrow MgO$.

Q3. 3 marks · Medium answer

For $Mg + O_2 \rightarrow MgO$, state the number of oxygen atoms on each side and explain why these counts show that the equation is unbalanced.

Answer

1. In $Mg + O_2 \rightarrow MgO$, oxygen is present as O_2 on the left-hand side, so there are two oxygen atoms among the reactants.
2. On the right-hand side, the formula MgO contains one oxygen atom in the product. The oxygen-atom counts are therefore unequal, so the equation is unbalanced and does not show equal mass on both sides.

Q4. 5 marks · Long answer

Consider the skeletal equation $Mg + O_2 \rightarrow MgO$. Count the atoms of each element on both sides and state whether the equation is balanced. Explain what the term ‘skeletal chemical equation’ means, and write the balanced equation for the burning of magnesium in air.

Answer

$2Mg(s) + O_2(g) \rightarrow$ (heat) $2MgO(s)$

This is a combination reaction because magnesium and oxygen form one product, magnesium oxide. Magnesium ribbon burns with a dazzling white flame and changes into a white powder, magnesium oxide.

A skeletal chemical equation is an unbalanced chemical equation that does not show equal numbers of atoms of each element on both sides. In $Mg + O_2 \rightarrow MgO$, the LHS has one magnesium atom and two oxygen atoms; the RHS has one magnesium atom and one oxygen atom. Therefore, magnesium atoms are balanced, but oxygen atoms are not balanced, so the equation is skeletal. A balanced equation has equal numbers of each type of atom on both sides, in accordance with the law of conservation of mass.

Q5. 1 mark · Very short answer

What is a skeletal chemical equation?

Answer

A skeletal chemical equation is an unbalanced chemical equation for a reaction, in which the mass is not the same on both sides.

Q6. 2 marks · Short answer

State the law of conservation of mass as it applies to a chemical reaction.

Full answer on SmartKalike: https://smartkalike.com/cbse/class-10/science/chemical-reactions-and-equations

Q7. 3 marks · Medium answer

When aqueous sodium sulphate and barium chloride are mixed, a white insoluble substance forms. Write the balanced chemical equation and identify the precipitate. State its colour and whether it dissolves in water.

Full answer on SmartKalike: https://smartkalike.com/cbse/class-10/science/chemical-reactions-and-equations

Q8. 5 marks · Long answer

(a) Write the reaction for respiration and explain why it is exothermic. (b) State why the decomposition of vegetable matter into compost is exothermic. (c) Write the reaction of slaked lime with carbon dioxide in air and explain how it affects whitewashed walls.

Full answer on SmartKalike: https://smartkalike.com/cbse/class-10/science/chemical-reactions-and-equations

Q9. 1 mark · Multiple choice

A reaction in which two or more reactants form a single product is called a:
(A) decomposition reaction
(B) combination reaction
(C) displacement reaction
(D) double displacement reaction

Full answer on SmartKalike: https://smartkalike.com/cbse/class-10/science/chemical-reactions-and-equations

Q10. 2 marks · Short answer

Why must a skeletal chemical equation be balanced? Relate your answer to the number of atoms before and after a reaction.

Full answer on SmartKalike: https://smartkalike.com/cbse/class-10/science/chemical-reactions-and-equations

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