

Chemical Reactions and Equations

Class 10 Science | NCERT Science, Chapter 1 | Reprint 2026-27

16 marks total. Suggested marking points; accept equivalent, scientifically correct explanations.

- 1. [1 mark]** A. A dazzling white flame and a white solid. The solid is magnesium oxide.
- 2. [1 mark]** B. $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$. There are two magnesium atoms and two oxygen atoms on each side.
- 3. [2 marks]** $3\text{Fe} + 4\text{H}_2\text{O} \rightarrow \text{Fe}_3\text{O}_4 + 4\text{H}_2$ (1 mark). The law of conservation of mass (1 mark).
- 4. [2 marks]** In a combination reaction, two or more reactants form a single product (1 mark). In a decomposition reaction, a single reactant breaks down into two or more products (1 mark).
- 5. [2 marks]** Hydrogen is oxidised because it gains oxygen (1 mark). Copper(II) oxide is reduced because it loses oxygen (1 mark).
- 6. [2 marks]** Changing the formula changes the identity of the substance; use coefficients instead (1 mark). The balanced equation is $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$ (1 mark).
- 7. [3 marks]** The blue solution becomes greenish as iron sulphate forms (1 mark). A reddish-brown copper coating forms on the nail (1 mark). This is a displacement reaction (1 mark).
- 8. [3 marks]** It helps prevent rancidity caused by oxidation of fats and oils (1 mark). Nitrogen reduces contact with oxygen inside the packet (1 mark). Accept refrigeration, an airtight container, or suitable antioxidants as another method (1 mark).

Teaching note: balance equations using coefficients, not by changing chemical formulae. These are written questions; no experiments are required.

Source: NCERT Science, Class 10, Chapter 1, reprint 2026-27. Original Teachers Lab questions; no NCERT or CBSE endorsement.