

Chapter: 6.1 (Types of reaction)

1. Copy and complete the following sentences.

In a **chemical** reaction, new substances are formed. In a **physical** change, no new substances are formed. **Mass** is conserved in both types of change. Examples of types of chemical reactions include **oxidation, reduction** and **decomposition**.

2. Is each of the following a chemical reaction or a physical change:

- a) Burning petrol in an engine [chemical]
- b) Using indigestion tablets [chemical]
- c) Paint drying [physical]
- d) Bacon frying [chemical]
- e) A car rusting [chemical]
- f) A dead leaf rotting [chemical]
- g) Dissolving nail varnish in nail varnish remover [physical]
- h) Digesting food [chemical]

3. For each of the following reactions, write a word equation and name the type of reaction:

a) When copper oxide is heated with hydrogen, copper and steam are formed.

Ans. Copper oxide + hydrogen → Copper + water [reduction]

b) When hydrochloric acid is mixed with sodium hydroxide, sodium chloride and water are formed.

Ans. hydrochloric acid + sodium hydroxide → Sodium chloride + water.
[neutralization]

c) When chlorine is passed through a solution of potassium bromide, bromine and potassium chloride are formed.

Ans. Chlorine + Potassium bromide → Bromine + Potassium chloride.
[displacement]

d) When light shines on silver chloride, silver and chlorine are formed.

Ans. Silver chloride → Silver + Chlorine. [decomposition]

e) When solutions of sodium sulphate and barium nitrate are mixed, sodium nitrate solution and solid barium sulphate are formed.

Ans. Sodium sulphate + Barium nitrate → Sodium nitrate + Barium sulphate.
[precipitation]

f) When nickel is heated in air, nickel oxide is formed, although the nickel does not burn.

Ans. Nickel + oxygen(air) → Nickel oxide. [oxidation]

4. Define the following:

i) **Exothermic reaction**:- A reaction in which chemical energy is converted to heat energy, and so heats up.

ii) **Endothermic reaction**:- A reaction in which heat energy is converted to chemical energy, and so cools down.

iii) **Conservation of mass**:- The law states that total mass does not change during physical and chemical change.

5. Write the differences between chemical and physical change.

Ans.

Physical change	Chemical change
a) No new substance is formed.	a) One or more new substances are formed.
b) They are reversible.	c) They are irreversible.
d) Ex, water to ice.	e) Ex, burning of coal.