

Science | Worksheet | Grade X
Chemical Reaction and Equations

1. Define a chemical change.
2. Give four examples of a chemical change.
3. Give four characteristics of a physical change.
4. Give an example of a chemical change that is reversible.
5. Define a physical change.
6. Classify as physical or chemical change:
 - a. Tearing of paper
 - b. Production of biogas
 - c. Butter going rancid
 - d. magnetization of iron
 - e. Clotting of blood
7. Give four examples of a physical change.
8. Give four characteristics of a chemical change.
9. What do you understand by an exothermic chemical change
10. Identify physical or chemical changes in the following:
 - a. A rock rolls down a slope
 - b. Baking of cake
 - c. Plucking of fruit
 - d. Burning of L.P.G
 - e. Cutting of carrots
11. Explain whether the addition of dilute sulphuric acid to iron is a physical or chemical change.
12. Heating of iodine crystals is considered to be a physical change. Explain.
13. Burning of a candle may be considered as showing physical and chemical changes occurring simultaneously. Explain.
14. It is a chemical change as Iron react with dilute sulphuric acid to form Ferrous sulphate
15. When iodine crystals are heated, the solid changes to the vapor state i.e., it sublimes. This is identified as a physical change since
 - a. The vapors formed settle on the cooler parts of the test tube as solid - so the change is temporary and reversible.

- b. There is no change in mass.
- c. There is no energy (heat) change involved because the heat absorbed when the solid iodine changes to vapor, is given out when the vapor changes back to solid.
- d. The chemical composition of the solid is same as that of the vapor..

Four Marks Questions

1. Given the following equation:

- a. Zinc+ Hydro bromic acid----Zinc bromide + Hydrogen
- b. Write the equation using symbols and formula.
- c. Name a solid reactant in the reaction.
- d. Name a gaseous product formed in the reaction.

2. What information is conveyed by a chemical equation?

3. What information does the following equation convey? $\text{CaCO}_3 + 2\text{HCl} \rightarrow \text{CaCl}_2 + \text{H}_2\text{O} + \text{CO}_2$

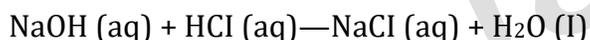
4. Balance the following equations after writing them as molecular equations.

- a. Sodium + Nitrogen \rightarrow Sodium nitride
- b. Aluminum + Chlorine \rightarrow Aluminum chloride
- c. Iron (III) oxide + Hydrogen \rightarrow Iron + Water
- d. Phosphorous + oxygen \rightarrow Phosphorus pentoxide
- e. Trilead tetra oxide \rightarrow Lead monoxide + Oxygen.

5. Define the following terms

- a. Thermal decomposition
- b. Electrolytic decomposition

6. What type of reaction is this? Why is it called so?



7. Give the balanced equation for reactions that take place when the following are heated

- a. Silver oxide
- b. Potassium nitrate
- c. Lead nitrate
- d. Trilead tetraoxide
- e. Copper carbonate

8. When an iron knife is dipped in a solution of copper sulphate, a reddish brown layer gets formed on the knife. Explain.

9. When hydrochloric acid is converted to chlorine, is the acid getting oxidized? Explain.

10. Ammonium nitrate when heated disappears completely. Why?

11. Chemical reactions are often accompanied by heat changes. Explain.

12. State what type of reaction the following are:

- a. Splitting of water into hydrogen and oxygen
- b. burning of hydrogen in air
- c. Action of iron with copper sulphate solution
- d. Action of heat on calcium carbonate
- e. Treating silver nitrate with hydrochloric acid

13. When ice is exposed to air, it melts to form water and when hydrogen is burnt in air, it forms water. How do these changes differ?

14. Blue Copper Nitrate crystals turn black when heated. Explain.

15. When chlorine is passed through potassium iodide solution containing chloroform, purple color is observed. Explain.

16. When silver nitrate is added to seawater, a white precipitate is formed. Explain.

Five Marks Questions

1. Write chemical reaction for these

- a. Treating dilute sulphuric acid with sodium hydroxide solution
- b. Heating ammonium chloride
- c. Changing ammonium chloride into sodium and chlorine
- d. Heating a mixture of iron and sulfur
- e. Passing chlorine through a solution of potassium bromide

2. Define a double decomposition reaction

3. What type of change takes place in the following, physical or chemical? Briefly explain.

- a. Heating of zinc oxides
- b. Action of sodium with water
- c. Rain cycle
- d. Heating calcium carbonate
- e. Action of dilute acids on magnesium

4. Name the following and give equations for these reactions:

- a. A white solid, which when heated, leaves behind a yellow solid and gives CO_2 .
- b. A bluish green powder, on heating, leaves behind a black solid and gives CO_2 .
- c. A colorless solid produces a yellow solid when hot and a white solid when cold and gives a reddish brown gas. Give equations for each.