

Chapter 1: Chemical Reactions and Equations

1. Define Chemical Reaction.

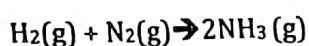
The process of formation of new substances with new set of is called **Chemical Reaction**.

2. What is balanced chemical equation?

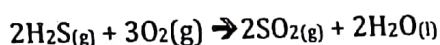
When the number of atoms of different elements on reactant side and product side are equal, such chemical equation is called a balanced chemical equation.

3. Translate the following into balanced chemical equations.

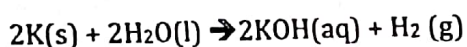
i. Hydrogen gas reacts with nitrogen gas to form ammonia



ii. Hydrogen sulphide gas burnt in air to give water and sulphur di oxide.



iii. Potassium metal reacts with water gives potassium hydroxide hydrogen gas.



4. What is Physical Change? Give Example.

A physical change is a temporary change and is easily reversible. in which no new substance is formed and the composition of the substance is not altered although certain specific physical properties may be changed.

E.g.:-

- (a) Melting of Ice
- (b) Lighting of electric bulb
- (c) Magnetization of iron
- (d)

5. What is Chemical Change? Give Example.

A chemical change is a permanent change in which a new chemical substance is formed with different properties.

E.g.:-

- (a) Burning of fuel
- (b) Burning of wood

6. List the changes takes place during Chemical reaction.

- change in state
- change in colour
- evolution of a gas
- Change in temperature.
- Change in the chemical composition

7. Define Chemical equation?

Symbolic representation of reactants and products using suitable symbols and chemical formulae.

8. What you mean by balancing of equation? Why chemical equation should be balanced? The

practice of equalising the number of atoms of elements on left hand side to the corresponding atoms on right hand side is called **balancing of equation**.

According to the law of conservation of mass, 'mass can neither be created nor be destroyed during a chemical reaction', Hence we must balance a chemical equation. .

9. Write the 4 Types Of Chemical Reactions

1. Combination
2. Decomposition
3. Displacement
4. Double decomposition

10. What is a combination reaction? Give example.

A reaction in which two or more reactants combine to form a single product is called chemical combination.

Ex: Burning of Coal $C(s) + O_2(g) \rightarrow CO_2(g)$

11. What is a decomposition reaction? Write the 3 types decomposition with examples.

A reaction in which a single reactant breaks down to form two or more products is known as chemical decomposition reaction.
3 types of **decomposition** are-

i) **Thermal decomposition:** When a decomposition reaction is carried out by heating, it is called thermal decomposition.

Example: $1. CaCO_3(s) + Heat \rightarrow CaO(s) + CO_2(g)$

ii) **Electrolytic decomposition:** Take place by electric current.

Example: $2 H_2O + electric\ current \rightarrow 2H_2(g) + O_2(g)$

iii) **Photolytic reaction :** By using light energy

Examples: 1 white silver chloride turns grey in sunlight. This is due to the decomposition of silver chloride into silver and chlorine by light.

$2AgCl(s) \xrightarrow{Sunlight} 2Ag(s) + Cl_2(g)$

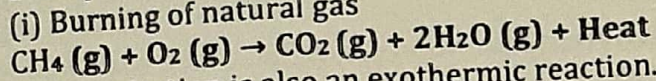
The above reactions are used in black and white photography.

12. Define exothermic reaction?

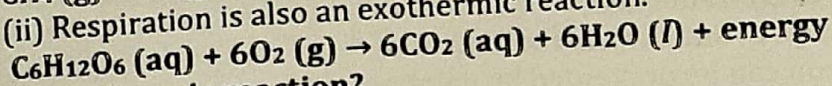
i) A chemical reaction in which releases heat energy is called an exothermic reaction

Examples:

(i) Burning of natural gas



(ii) Respiration is also an exothermic reaction.



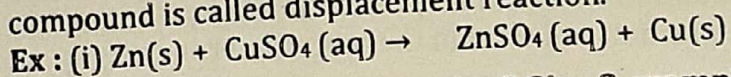
13. Define Endothermic reaction?

Endothermic reaction: A chemical reaction in which heat energy is absorbed.

Examples: i) $\text{CaCO}_3 + \text{Heat} \rightarrow \text{CaO} + \text{CO}_2$

14. Define Displacement reaction?

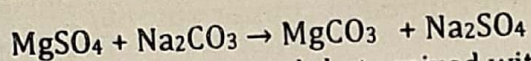
When a more reactive element displaces less reactive element from its compound is called displacement reaction.



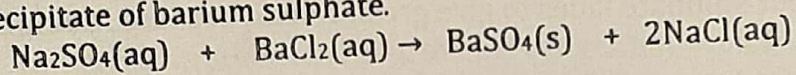
15. What is double displacement reaction? Give 2 examples.

The reaction in which two different ions or group of atoms in the reactant molecules are displaced by each other is called double displacement reaction.

Example: (i) When sodium carbonate solution added to magnesium sulphate solution in a test tube, a white precipitate of magnesium carbonate is formed.



(ii) When sodium sulphate mixed with barium chloride forms white precipitate of barium sulphate.



16. What are precipitation reactions? Explain with suitable example.

The chemical reactions which involves the formation of insoluble solid are called precipitation reaction.



17. What is oxidation reaction? Give 2 examples.

The process of addition of oxygen to a substance or removal of hydrogen from a substance is called oxidation reaction.

example: (i) $4\text{Na} + \text{O}_2 \rightarrow 2\text{Na}_2\text{O}$ Na Oxidised to - Na_2O .

(ii) $2\text{Cu} + \text{O}_2 + \text{Heat} \rightarrow 2\text{CuO}$ Cu Oxidised to - CuO .

18. Why do we apply paint on iron articles?

By applying paint on iron articles, they can prevented from corrosion (rusting). Paint does not allow oxygen and moisture to come in contact with the surface of iron.

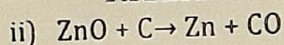
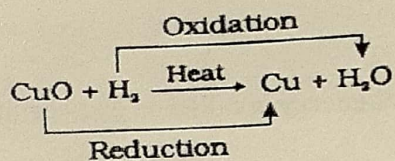
19. What is reduction reaction?

The processes of removal of oxygen from a substance or addition of hydrogen to a substance is called reduction reaction.

20. What are redox reactions? Give 2 examples

The reactions in which oxidation and reduction takes place simultaneously are called redox reactions.

Example (i) CuO reduced to - Cu . H_2 Oxidised to - H_2O



C is oxidized to CO -----oxidation
 ZnO is reduced to Zn -reduction

21) How do you prevent the corrosion?

The rusting of iron can be prevented by painting, oiling, greasing, galvanizing, chromium plating, anodizing or making alloys.

22. What is Rancidity? How can it be controlled?

The process of slow oxidation of oil and fat present in the food materials resulting in the change of smell and taste in them is called rancidity.

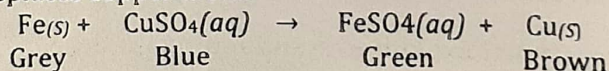
- By keeping food materials in air tight container.
- Refrigeration of cooked food at low temperature.
- By adding anti-oxidants.

23. Why are Oil food items flushed with nitrogen?

To prevent the rancidity by getting oxidized

24. What will you observe when an iron nail is dipped in copper sulphate solution?

Blue colour of copper sulphate fades to give green colour, because Iron displaces copper metal.



Chapter-2: Acid Base and Salt

1. List any 3 properties of acids.

- a) These are the substances which have sour taste.
- b) They turn blue litmus to red.
- c) They give H_3O^+ ions in aqueous solution.

2. List the any 3 properties of bases.

- a. These are the substances which are bitter in taste and soapy in touch.
- b. They turn red litmus solution blue.
- c. They give OH^- ions in aqueous solution

3. Give examples for acids

Hydrochloric acid (HCl), Sulphuric acid (H_2SO_4), nitric acid (HNO_3)

4. Give examples for bases

Sodium hydroxide (NaOH), calcium hydroxide [$\text{Ca}(\text{OH})_2$], potassium hydroxide (KOH), and ammonium hydroxide (NH_4OH).