

## Chapter # 05

Chemical Reactions:

Q:- Define chemical reactions and give examples?

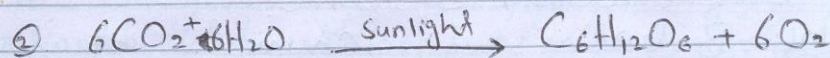
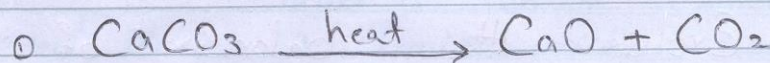
Ans:- Chemical Reaction:-

The process of formation or breaking of a chemical compound is called a chemical reaction.

Explanation:-

During a chemical reaction new substances are formed which are different from the starting substances. Those substances which combine with each other are called reactants, while those substances which are produced as a result of chemical reaction are called products.

Examples:-



Q:- Explain the rearrangement of atoms in chemical reactions?

Ans:- Re-arrangement of atoms in chemical reactions:-

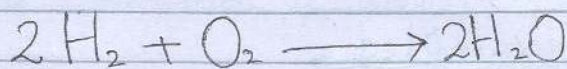
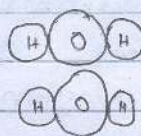
During a chemical reaction atoms rearrange themselves to form a new substance or substances.

Explanation:-

During the reaction, old combinations of atoms are broken and new combinations are formed between atoms.

Example :-

Hydrogen and <sup>oxygen</sup> atoms chemically combine, they form water. In this process, the combination between two hydrogen atoms and the combination between two oxygen atoms are broken. At the same time, new combination between two hydrogen atoms and one oxygen atom is formed.



**Q :- Explain the balancing of a chemical equations?**

**Ans:-** Balancing of chemical equations means that the number of atoms of each element must be equal on both sides of a chemical equation.

**\* :- Steps involved in balancing of chemical equations**  
Following steps are involved in balancing of chemical equations.

**Step 1:-** Write unbalanced chemical equation. The symbols and formulae of the reactants and products must be correct.

**Step 2:-** Count the number of atoms of each element on both sides.

Step 3:- If the number of atoms are different on both sides, write the required number as a coefficient of the symbols or formulae.

Step 4:- Work with one element at a time.

Step 5:- Always start with a relatively small number.

Step 6:- Start with atoms that appear only once in the reactants and products.

Q:- Define the law of conservation of mass?

Ans:- Law of Conservation of Mass:-

See in notes.

Q:- Describe the changes in the states of matter in chemical reaction?

(Ans):- Changes in states of matter:-

Matter is neither created nor destroyed during a chemical reaction. However, a chemical change may be accompanied by a change in physical state of the reactants due to the re-arrangement of atoms.

Examples:-

Water (liquid) is formed by the combination of oxygen (gas) and hydrogen (gas).

NOTE:-

Mentioning physical state with reactants and products is one of the basic characteristics of chemical equation.

Example:-



Q:- Describe the importance of exothermic reactions in daily life?

(Ans):- Importance of exothermic reactions in daily life:-  
Exothermic ~~reaction~~ reactions are very important in our daily life. Some of them are mentioned below.

⇒ The life on earth is possible due to the exothermic reactions taking place in the sun.

⇒ The heat released during respiration, not only keep us warm but also provides energy for our normal functions.

⇒ We enjoy the warmth from the heat released by the combustion of wood, charcoal and natural gas.

⇒ The heat released by the burning of fuels is also used for cooking food, running vehicles, and operating factories.