Chapter 2 - Physical and Chemical changes

Question 1.

Define:

(a) Physical change

(b) Chemical change.

Solution:

(a) Physical Change: A physical change is a temporary change in which no new substance is formed, and the chemical composition remains the same, even though its physical properties like colour, state, shape, size etc. might change.

(b) Chemical Change: A chemical change is a permanent change in which new kind of substances are formed whose chemical composition and physical and chemical properties are different from those of in original substance.

Question 2.

Classify the following as a physical or a chemical change.

(a) Drying of wet clothes

Solution: Physical change

(b) Manufacture of salt from sea water

Solution: Physical change

(c) Butter getting rancid

Solution: Chemical change

(d) Boiling of water

Solution: Physical change

(e) Burning of paper

Solution: Chemical change

(f) Melting of wax

Solution: Physical change

(g) Burning of coal

Solution: Chemical change

(h) Formation of clouds

Solution: Physical change

(i) Making of a sugar Solution:

Solution: Physical change

(j) Glowing of an electric bulb

Solution: Physical change

(k) Curdling of milk

Solution: Chemical change

Question 3.

Fill in the blanks.

Solution:

(a) The process of a liquid changing into a solid is called **freezing.**

(b) A change, which alters the composition of a substances, is known as a chemi**cal** change.

(c) There is no change in the **composition** of the substance during a physical change.

(d) The reaction in which energy is evolved is called **exothermic reaction.**

Question 4.

Given reason:

(a) Freezing of water to ice and evaporation of water are physical changes.

(b) Burning of a candle is both a physical and chemical change.

(c) Burning of paper is a chemical change.

(d) Cutting of a cloth piece is a physical change, though it cannot be reversed.

Solution:

Physical changes are freezing of water to ice and evaporation of water because water can be brought back to its original form i.e. liquid) by

- We can heat the ice to bring it back to water.
- We can cool down the vapours to bring it back to water.

(b) Some of the solid wax first melts and turns into liquid; then it turns into vapours to produce a flame when a candle is lighted. New substances carbon dioxide and water vapours are formed along with the evolution of light and heat energy. This shows a chemical change. When some of the molten wax drops to the floor, it again solidifies which shows a physical change. Thus the melting of candle wax is a physical change, and the production of carbon dioxide and water represents a chemical change.

(c) New substance ash is produced, when a piece of paper is burnt. Even when the burning is stopped, the ash cannot be changed back into paper. This shows that the formation of the ash from the paper is a permanent and irreversible change.

(d) Because it does not change the chemical composition of cloth and the change is only in the state, size, shape, colour, texture or the smell of some or all of the substances that undergo a physical change.

Question 5.

Give four difference between physical and chemical changes.

Solution:

Physical change	Chemical change
No new substance is formed, and the chemical composition of substance remains the same in a physical change. There are changes only in physical properties and state.	A new substance with entirely different chemical composition and properties is formed in a chemical change.
Temporary change which can be reversed by simple physical methods.	Permanent change and irreversible
The weight of the original substance doesn't change	The weight of original substances may increase or decrease
Energy like heat, light etc. may or may not be absorbed or released	Energy like heat, light etc. are given out or absorbed.