

DON BOSCO SCHOOL, KOKAR, RANCHI

CLASS -8

Subject: CHEMISTRY

Chapter -2: PHYSICAL AND CHEMICAL CHANGES

A.Short answer questions:

1.What are reversible changes? Which of the two –the vaporization of water and the burning of paper - is a reversible change?

Ans- A change is said to be reversible when the opposite change can be brought about by reversing the condition. Vaporization of water is a reversible change.

2. What are irreversible changes? Which of the two- the melting of ice and the growth of plant- is a irreversible change?

Ans- A change is said to be irreversible when the opposite changes cannot be brought about by reversing the condition. Growth of plant is a irreversible change.

3. Define a periodic change. Is rusting a periodic change?

Ans- Periodic changes are changes which occur periodically or at regular intervals. No, rusting is not a periodic change.

4. Define a non periodic change. Is the swinging of a pendulum a non periodic change?

Ans – Non- periodic changes are the changes which do not occur at a fixed or regular interval of time. No, the swinging of a pendulum is not a non periodic change.

5. Classify the following into desirable and undesirable changes:

- a) The spoiling of food (undesirable changes) b) The digestion of food (desirable changes)
- c) The rotting of an egg (undesirable changes)
- d) The decaying of a dead animal in an open air (undesirable changes)

6. Define physical changes. Is rusting a physical change?

Ans- A change in which no new substances are formed and which can be reversed by reversing the conditions. No, rusting is not a physical change.

7. Define chemical changes. Is the heating of an electric iron is a chemical change?

Ans- A change in which new substances are formed and which cannot be reversed by reversing the conditions. No, the heating of an electric iron is not a chemical change.

8. Classify the following into physical changes and chemical changes:

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| a) The melting of ice (Physical) | b) Respiration(chemical) |
| c) The cooking of food(chemical) | d) Fermentation(chemical) |
| e) The evaporation of liquid(physical) | f) The sublimation of iodine(physical) |
| g) The dissolution of solid(physical) | h) The burning of coal(chemical) |
| i) The glowing of a bulb(physical) | j) The freezing of water(physical) |
| k) The curdling of milk(chemical) | l) Photosynthesis in green plants(chemical) |
| m) The condensation of water vapour(physical) | n) The digestion of food(chemical) |

9. Define endothermic and exothermic changes.

Ans- Endothermic changes: Endothermic changes are which requires or absorbs heat energy from its surroundings.

Exothermic changes: Exothermic changes are which releases heat energy to its surroundings.

B. Long answer question:

1. Give two examples to show that mass of the individual substances undergoing a chemical change altered. How do these changes obey the law of conservation of mass?

Ans- Two examples to show that mass of the individual substances undergoing a chemical change altered are:

- One good example of a chemical change is burning a candle. The act of burning paper actually results in the formation of new chemicals (carbon dioxide and water, to be exact) from the burning of the wax also.
- Another example of a chemical change when burnt in air hydrogen forms water. Again the atoms contained in the molecules of hydrogen and oxygen rearranges themselves. Thus they have actually changed into a new substance, water, which is different from hydrogen or oxygen. So, the mass of the substances, taken together, before and after a chemical change remains the same. This is in accordance obeys the law of conservation of mass.

2. State the differences between the physical changes and chemical changes.

Ans-

Physical change	Chemical change
1. A physical change is temporary.	1. A chemical change is permanent.
2. A physical change is reversible.	2. A chemical change is irreversible.
3. No new substances are formed after a physical change.	3. New substances are formed after a chemical change.

4. After a physical change, the mass of the substances does not change.	4. After a chemical change, the mass of any individual substance changes.
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3. Discuss an example to show that physical and chemical changes can occur together.

Ans- **i) Physical Change:** When a candle is lighted, some of the solid wax melts and turns into a liquid. When it cools it solidifies. Therefore, this is a physical change, involving only a change in state, which is reversible.

ii) Chemical change: But some turns into vapour and gives a flame. This forms two new substances, water vapour and carbon dioxide, and the size of the candle decreases. This is a chemical change, and it cannot be reversed. Thus, we see that the melting of wax is a physical change but the burning of a candle is a chemical change.

4. Give one example of each kind to show that a change in energy takes place when a physical and chemical change occurs.

Ans- **i) Physical change:**

During a physical change in matter, such as the evaporation of liquid water to water vapour, the energy of the water molecules increases. However, the change in energy is much smaller than in chemical reactions. When a chemical reaction occurs, some bonds will break, while new bonds may form.

ii) Chemical change:

During a chemical change in matter, that releases energy in the form of heat or light. In other reactions, the energy that must be absorbed to break the bonds in the reactants is more than the energy that is released when the new bonds in the products are formed.

5. Explain why there is an energy change in a change of state of matter as well as in a chemical change?

Ans- **i)** Energy is always involved in changes of state. Matter either loses or absorbs energy when it changes from one state to another. For example, when a matter changes from a liquid to solid, it loses energy. It absorbs energy when matter changes from a solid to a liquid.

ii) The energy change in a chemical reaction is due to the difference in the amounts of stored chemical energy between the products and reactants.

C. Fill in the blanks:

Answers: 1. does not change 2. Chemical 3. Endothermic 4. Water vapour

5. moisture

6. Increases

1. When a solid dissolves in a liquid, the volume of the liquid _____.
2. Photosynthesis is a _____ change.
3. The vaporization of water is a _____ change.
4. When burnt, CNG forms carbon dioxide and _____.
5. Iron combines with oxygen and _____ of the air so form rust.
6. The kinetic energy of molecules _____ when a solid melts.

D. True or false:

Answers: 1. False 2.false 3.True 4.true 5.true 6.false

1. A physical change is irreversible.
2. A chemical change is reversible.
3. The mass of a substance undergoing a physical change is not altered.
4. Heat is absorbed when glucose is dissolved in water.
5. Heat is evolved when concentrated hydrochloric acid is poured into water.
6. The slaking of lime is an endothermic change.

Points To Remember

1. The burning of LPG is not a reversible change.
2. The change of the phases of the moon is a periodic change.
3. During sublimation no new substances are formed.
4. During photosynthesis process the light is absorbed.
5. The freezing of water is exothermic changes.
6. The melting of iron is endothermic changes.

Assignment:

1. Write all the long and short questions answer in your copy and learn it.
2. Learn all objectives- fill in the blanks, true or false and also points to remember.