

SOLVED QUESTIONS

1. Fill in the blank ?

1. Heating of zinc oxide is a change.
2. Burning of coal is a change.
3. There is a change in and during a chemical change.

Ans: - 1. physical 2. chemical 3. state, composition

2. State whether the following statements are true or false :

1. Digestion of food is a chemical change.
2. Formation of steam from water is a physical change.
3. During chemical change, the molecular composition remains the same.

Ans: - 1. True 2. True 3. False

3. Iron articles are coated with paint.

Ans. Iron articles are coated with paint because it cuts off the contact of air and moisture with iron and prevent the articles from rusting.

4. Decomposition of water is a chemical change.

Ans. Decomposition of water is a chemical change because when current is passed through water it decomposes into hydrogen and oxygen.

5. Presence of manganese dioxide enhances the rate of decomposition of potassium chlorate.

Ans. Manganese dioxide enhances the rate of decomposition of potassium chlorate because it acts as a catalyst and oxygen is given off rapidly from potassium chlorate.

6. Boiling, evaporation and condensation are physical changes.

Ans. Boiling, evaporation and condensation are physical changes because they are temporary changes and can be easily reversed.

7. Classify the following changes as desirable or undesirable changes:

- (i) Formation of manure from dung
- (ii) Melting of snow
- (iii) Breaking of glassware
- (iv) Waste produced from plastic bags

Ans. (i) Formation of manure from dung — **Desirable change.**

(ii) Melting of snow — **Desirable change.**

(iii) Breaking of glassware — **Undesirable change.**

(iv) Waste produced from plastic bags — **Undesirable change.**

8. Classify the following changes as periodic or non-periodic changes:

- (i) A child on a swing
- (ii) Rusting of an iron nail
- (iii) Sneezing
- (iv) Beating of heart
- (v) Earthquake

Ans. (i) A child on a swing — Periodic

(ii) Rusting of an iron nail — Non-periodic

- (iii) Sneezing — Non-periodic
- (iv) Beating of heart — Periodic (v) Earthquake — Non-periodic

9. (i) Define a physical change.
(ii) Give four examples of physical changes.

Ans. (i) A change in which no new substance is formed, as the molecules of the substance undergoing change are not affected, is known as a physical change. A physical change involves a change in the physical properties such as size, shape, colour, volume, mass, etc.

(ii) Four examples of physical changes

- (a) Melting of ice
- (b) Evaporation of water
- (c) Magnetisation of iron
- (d) Colour change due to heat as in case of zinc oxide

10. (i) Define a chemical change.
(ii) Give four examples of chemical changes.

Ans. (i) A change which alters the specific properties of a substance by bringing about a change in its molecular composition, followed by a change in its state is called a chemical change.

(ii) Four examples of chemical changes.

- (a) Rusting of iron
- (b) Ripening of fruit
- (c) Curdling of milk
- (d) Cooking of food

11. What is a change? Explain giving examples.

Ans. A change can be defined as an alternation in the physical and chemical properties of matter due to the effect of some kind of energy. For example, changes in weather, growth of living organisms, cooking of food, etc.

12. State an experiment to show that a physical change is temporary and reversible.

Ans. Take 2 gm white powder of zinc oxide in a dry test tube and heat it strongly. After two minutes of heating, we observe that the colour of zinc oxide changes to yellow colour.

Now cool the test tube. After a few minutes we observe that the colour of zinc oxide changes to white colour. This experiment proves that a physical change is temporary and reversible

13. Write the various conditions that favour a chemical change.

Ans. There are various conditions that favour a chemical change. These are as follows:

(i) **Contact.** A chemical reaction occurs when two substances are in close contact with each other. For example, when sodium comes in contact with water, it burns and produces hydrogen and sodium hydroxide.

(ii) **Solution.** Most of the chemical reactions occur when the solutions of the reactants are mixed together.

(iii) **Heat.** Heat is necessary for most of the reactions.

(iv) **Light.** A number of chemical reactions occur in the presence of light, e.g. photosynthesis.

(v) **Electricity.** Passage of electric current through molten or aqueous solutions of compounds causes a chemical change. For example, water can be decomposed into hydrogen and oxygen by

passing an electric current through it.

(vi) **Catalyst.** A catalyst without undergoing any change can change the rate of a reaction.

14. Give an experiment to show that a new substance is formed during a chemical change.

Ans. In a chemical reaction, the composition of a substance changes and a new substance with new properties is formed. We can show it by an experiment. Take a piece of marble and heat it strongly over a flame for 15 minutes. When this piece of marble is heated and then cooled, carbon dioxide is released and a new substance calcium oxide is left behind. This substance (calcium oxide) has different properties from marble (calcium carbonate)

15. What is photochemistry? Give two examples of photochemical reactions.

Ans. Photochemistry. It is the branch of science in which effects of light on a chemical reaction is studied. Photosynthesis and blackening of a photographic plate are examples of photo-chemical reactions.