Class 7th Living science solution 2017-18
Chapter 8. PHYSICAL AND CHEMICAL CHANGES

P. 79 Oral Questions For Formative Assessment

1. chemical change 2. chemical change 3. physical change, chemical change

P. 84 Oral Questions For Formative Assessment

1. precipitate 2. exothermic reaction 3. combination reaction

4. precipitate formation can occur in precipitation reactions; double displacement reaction

5. Both are same

P. 86 Oral Questions For Formative Assessment

1. No, They are arranged in a regular pattern only in some solids for example in a crystal. By completely evaporating the liquid crystallization

P. 87 . For Formative and Summative Assessment

A. 1 . a 2. d. 3. b 4. a 5. c 6.a. 7. d 8. c 9. b 10. a

B. 1. chemical 2. false 3. galvanization 4. carbon dioxide

5. precipitate 6. endothermic 7. exothermic

8. a. combination reaction b. decomposition reaction c. double displacement reaction

d. single displacement reaction e. double displacement reaction f. neutralization reaction

9. oxygen, hydrogen 10. crystallization 11. false 12. true

C. 1. Water pipes are galvanized to prevent them from rusting.

2. Ice has different properties from water that is different physical properties. But both have the same chemical properties. Therefore, freezing is a physical change.

3. a. Evolution of gas: CaCO3 + 2HCI ---------> CaCl2 + H2O + CO2↑

b. Change of colour: CuCO3(green) --> CuO (black) + CO2↑

c. Formation of precipitate: CuSO4(Blue) + H2S --> CuS(black) ↓ + H2SO4

d. Change of state from liquid to gas: 2H20(l) ----->H2(g) ↑ + O2(g)↑

e. Change of state from gas to liquid: 2H2(g) + O2(g) ----> 2H20(l) hydrogen oxygen water

4. Exothermic Reactions: Reactions accompanied with release of heat are called exothermic reactions.

Example: CaO + H2O Ca(OH)2 + Heat

Endothermic Reactions: Reactions accompanied with absorption of heat are called endothermic reactions.

Example: C + 2S -------> CS2 - Heat

5. When a compound is formed from its elements, or from simpler substances, the reaction is called combination reaction. A + B --> AB

Example: $2Mg + O_2 \rightarrow 2MgO$

6. A substance is said to be reduced in a chemical reaction when it loses oxygen or adds hydrogen.

7. The process by which crystals of common substances like salt or alum are obtained from a solution of these substances in water is known as crystallization.

8. The state of a solution which is unable to saturate any extra solute in the solvent is known as supersaturated solution.

D. 1. Rusting can be prevented by not allowing the iron to come in contact with moisture and air.

Two methods by which rusting of iron can be prevented are:

(i) by coating the iron with oil, grease or paint.

(ii) by depositing a layer of zinc or chromium on the iron. 2. When dilute hydrochloric acid is added to calcium carbonate, carbon dioxide gas is given off. CaCO3 + 2HCI --> CaCl2 + H2O + CO2 ↑

We can test the gas by passing it through transparent lime water, which turns milky white after passing CO2 in it. The reaction is: Ca(OH)2 + CO2 ---> CaCO3 + H2O

3. The following steps are involved in preparing magnesium hydroxide:

Take a small piece of magnesium ribbon. Clean its tip with sandpaper. Hold it with a pair of tongs and bring it near a flame. It burns with a dazzling white flame. A powdery ash (magnesium oxide(MgO), that does not look like magnesium is formed.

Collect the ash, mix it with a small amount of water in a test tube and stir. When magnesium oxide dissolves in water, it forms magnesium hydroxide [Mg(OH)2].

4. If combination reaction is denoted by A + B ---> AB, then decomposition reaction is denoted by AB --> A + B.

For example: If 2H2(g) + O2(g) ---> 2H20(l) is a combination reaction; then 2H20(1) ---> 2H2(g)↑ + 02(g)↑ is a decomposition reaction.

In combination reaction, compound is formed from simpler substances whereas in decomposition reaction, a compound breaks up into two or more substances.

5. Decomposition reactions normally take place under two conditions.

They are: (i) By heating the substance. Ca(OH)2 – heat----> CaO + H2O

(ii) By passing electricity through the solution. 2H20(1) ----- electricity--- > 2H2(g) ↑ + 02(g)↑

6. The chemical reaction in which one element replaces another element is known as displacement reaction. The rule of displacement reaction is that a more reactive element replaces a less reactive element from its compound. A + BC ---> AC Example: CuSO4 + Fe -----> FeSO4 + Cu

Iron is a more reactive element than copper. So iron displaces copper from copper sulphate.

7. In a double decomposition reaction, two compounds react by exchanging their radicals. AB + CD --> AD + CB

These reactions are of two types: (a) Precipitation reactions: NaCI + AgNO3 -----> AgCI↓ + NaNO3

(b) Neutralization reactions: H2SO4 + 2NaOH -------> Na2SO4 + 2H20

8. Oxidation: Oxidation is a chemical reaction that involves addition of oxygen or removal of hydrogen from a substance. Examples: (i) C + 02 -----> CO2

(ii) H2S + Cl2 -----> S + 2HCI hydrogen chlorine sulphur hydrogen sulphide chloride

Oxidizing Agent: An oxidizing agent is one that oxidizes other substances by providing oxygen to them or by removing hydrogen from them. In Eq. (i) oxygen and in Eq. (ii) chlorine are the oxidizing agents respectively.

HOTS Questions

1. Rusting is a greater problem in Mumbai as it is situated near the sea and hence the air is more humid.

2. Physical changes: Melting of wax on heating and solidification on cooling; vaporization of molten wax on heating Chemical change: Burning of wax

3. Physical change: Liquid LPG changing into gas on coming in contact with air Chemical change: Burning of gaseous LPG

4. No, there is no chemical reaction. Only the gas dissolved in water escapes.

5. Pickles contains certain amounts of acids. These acids may react with stainless steel spoons.