WORKSHEET 2

CHAPTER 14 – PRACTICAL CHEMISTRY

A. Read the statements and identify the gases.

1. A colourless gas which is neither combustible nor does it support combustion. It does not turn lime water milky.
2. A colourless gas which rapidly dissolves in alkaline pyrogallol solution and is a supporter of combustion.
3. A colourless gas which on coming in contact with air, forms a reddish-brown gas.
4. A reddish-brown gas obtained when lead nitrate crystals are strongly heated.
5. A colourless gas which bleaches moist coloured flowers.

B. Five solids are heated strongly, and the following observations are made. Identify each of the solids and write relevant equation in support of your answer.

1. A red solid on heating gives off a colourless gas, which rekindles a glowing splint. The residue is dark in colour and tiny silvery droplets are seen near the mouth of the test tube.
2. A chocolate-brown solid on heating gives a colourless, odourless gas, which rekindles glowing splint. The residue is reddish-brown when hot and yellow when cold.
3. A white crystalline solid decomposes explosively on heating and leaves behind no residue. One of the gaseous products formed, rekindles a glowing splint.
4. A white crystalline solid on heating decomposes explosively, and leaves behind no residue. An elementary gas is formed as one of the products which is neither combustible nor does it support combustion. It does not turn lime water milky.
5. A white crystalline solid, sublimes on heating to form dense white fumes. The fumes solidify on the cooler parts of the test tube to form a white solid.

C. Read the passage carefully and answer the questions:

A white crystalline sodium salt P is mixed with black powder and then heated with conc. sulphuric acid, then a gas Q is evolved along with steamy fumes. The gas Q is greenish-yellow in colour and turns potassium bromide solution red. The gas Q dissolves in water to form light-greenish yellow solution R. The solution R on exposure to sunlight gives off bubbles of a colourless gas S. The solution T left after the gas S bubbles out, gives curdy-white ppt. U with silver nitrate solution. The precipitate U dissolves in excess of ammonium hydroxide solution. Now identify the following.

1. Black powder.
2. Solid P and Gas Q.
3. Solution R.
4. Gas S and Solution T.
5. White precipitate U.

Name: ..... Teacher's signature: .....

Class: ..... X ..... Date: .....

D. Give one test to distinguish between

1. washing soda and baking soda.
2. copper oxide and manganese dioxide.
3. potassium chloride and sodium chloride.
4. zinc carbonate and lead carbonate.
5. powdered coke and manganese dioxide.

E. The list of substances is given below. Select one substance in each case which matches the description 1. to 5. given below.

Potassium nitrate, copper carbonate, calcium hydrogen carbonate, sodium carbonate, sodium hydrogen carbonate, lead nitrate, ammonium nitrate, zinc carbonate

1. A hydrogen carbonate which exists in the solid state.
2. A green coloured carbonate which on heating turns black.
3. A nitrate which on heating gives off only oxygen gas.
4. A nitrate which on heating gives off nitrous oxide (dil. nitrogen oxide) and steam.
5. A carbonate which does not decompose on heating.

ANSWERS

WORKSHEET 2

A. Read the statements and identify the gases.

1. Nitrogen gas
2. Oxygen gas
3. Nitric oxide (NO) gas
4. Nitrogen dioxide gas
5. Sulphur dioxide gas

B. Five solids are heated strongly, and the following observations are made. Identify each of the solids and write relevant equation in support of your answer.

1. The solid is mercury (II) oxide.

   $2HgO \xrightarrow{heat} 2Hg + O_2$

2. The solid is lead (IV) oxide (PbO_2).

   $2PbO_2 \xrightarrow{heat} 2PbO + O_2$

3. The solid is ammonium nitrate.

   $NH_4NO_3 \xrightarrow{heat} N_2O + 2H_2O$ (Steam)

4. The solid is ammonium nitrite.

   $NH_4NO_2 \xrightarrow{heat} N_2 + 2H_2O$ (Steam)

5. The solid is ammonium chloride.

   $NH_4Cl \overset{heat}{\rightleftharpoons} NH_3 + HCl$

C. Read the passage carefully and answer the questions:

1. Black powder is manganese dioxide.
2. Solid P is sodium chloride and Gas Q is chlorine gas.
3. Solution R is chlorine water.
4. Gas S is oxygen and Solution T is hydrochloric acid.
5. White precipitate U is silver chloride.

D. Give one test to distinguish between

1. Heat each of the salts strongly in a hard glass test tube and pass the gas evolved through lime water.
   i. In case of washing soda, lime-water does not turn milky.
   ii. In case of baking soda, lime-water turns milky.

2. Warm each of the oxides with dilute hydrochloric acid.
   i. In case of copper oxide, a greenish-blue solution of copper chloride is formed.
   ii. In case of manganese dioxide, no reaction takes place.
3. Make a thick paste of each salt in HCl. Take a small amount of the paste on clean platinum wire and introduce it in non-luminous Bunsen flame.
   i. In case of potassium chloride, a non-persistent lilac flame is formed.
   ii. In case of sodium chloride, a persistent golden-yellow flame is formed.
4. Heat each of the carbonates strongly in a hard glass test tube.
   i. In case of zinc carbonate, residue is yellow when hot and white when cold.
   ii. In case of lead carbonate, residue is reddish-brown when hot and yellow when cold.
5. Heat each of the substances with conc. hydrochloric acid.
   i. In case of coke, no visible reaction takes place.
   ii. In case of manganese dioxide, greenish-yellow gas chlorine is evolved.

E. The list of substances is given below. Select one substance in each case which matches the description 1. to 5. given below.

1. Sodium hydrogen carbonate
2. Copper carbonate
3. Ammonium nitrate
4. Potassium nitrate
5. Sodium carbonate