WORKSHEET 1

CHAPTER 14 – PRACTICAL CHEMISTRY

A. Read the statements and identify the gases.

1. A colourless gas which forms an explosive mixture with air and water is the only product of combustion.
2. A colourless gas which rekindles glowing splint but cannot be used for breathing.
3. A colourless gas which burns with a pale blue flame, forming carbon dioxide gas as the only product.
4. A colourless gas having a sharp pungent smell, which gives dense white fumes with HCl.
5. A colourless gas having a choking smell, which causes asthma.

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 heavy, white crystalline solid decrepitates and forms a residue, which is reddish-brown when hot and yellow when cold. It gives reddish-brown gas along with oxygen.
2. A white solid on heating leaves behind a residue, which is yellow when hot and white when cold. It gives off a gas which turns lime water milky.
3. A light green solid on heating leaves behind a black residue. A colourless gas is evolved, which turns lime water milky.
4. A white crystalline solid melts on heating. It gives off a colourless gas which rekindles a glowing splint. In the flame test, a persistent golden yellow flame is formed.
5. An orange red solid on heating gives off oxygen gas. The residue is reddish-brown when hot and yellow when cold. It fuses in glass and stains it yellow.

C. Read the passage carefully and answer the questions:

A white crystalline heavy solid L, on strong heating, gives off a reddish-brown gas and leaves behind a solid residue M which is reddish-brown when hot and yellow when cold. The solid residue M dissolves in conc. HCl. On heating, it forms a colourless solution.

However, when the solution cools, the white precipitate reappears. The solution of crystalline salt L in water is treated with freshly prepared ferrous sulphate solution. To this, reaction mixture is slowly added conc. sulphuric acid, when a brown ring appears.

1. Name the reddish-brown gas.
2. Name the solid L.
3. Name the white precipitate.
4. Name the residue M.
5. Give the chemical formula for brown ring.

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D. Answer the following questions.

1. State the colour of precipitate and its chemical formula when aqueous solution of sodium hydroxide is mixed with iron (III) chloride solution.
2. Name two elements whose hydroxides are soluble in water.
3. Name one non-metallic hydroxide.
4. Name two metals which form more than one type of cations. Name the cations.
5. Name the ion which is responsible for the blue colour of copper sulphate.

E. A list of compounds is given below. From the list choose your answers.

Zinc oxide	Carbon monoxide
Sodium sulphate	Silver chloride
Sodium hydroxide	Sodium carbonate
Chlorine	Nitrogen dioxide
Ferric oxide	Bleaching powder
Lead dioxide	Sodium bisulphate
Carbon	Copper carbonate
Carbon dioxide	Calcium hydroxide
Sulphur dioxide	Barium sulphate
Ammonia	Ammonium chloride
Lead sulphate.	

1. Select three insoluble salts.
2. Select three soluble salts.
3. Select three substances which dissolve in water to form acidic solutions.
4. Select three substances which dissolve in water to form alkaline solutions.
5. Select three substances which are oxidizing agents.

ANSWERS

WORKSHEET 1

A. Read the statements and identify the gases.

1. Hydrogen gas
2. Nitrous oxide (N_2O) gas
3. Carbon monoxide gas
4. Ammonia 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 lead nitrate.

   $2Pb(NO_3)_2 \xrightarrow{heat} 2PbO + 4NO_2 + O_2$

2. The solid is zinc carbonate.

   $ZnCO_3 \xrightarrow{heat} ZnO + CO_2$

3. The solid is copper carbonate.

   $CuCO_3 \xrightarrow{heat} CuO + CO_2$

4. The solid is sodium nitrate.

   $2NaNO_3 \xrightarrow{heat} 2NaNO_2 + O_2$

5. The solid is red lead (Pb_3O_4).

   $2Pb_3O_4 \xrightarrow{heat} 6PbO + O_2$

C. Read the passage carefully and answer the questions:

1. Reddish-brown gas is nitrogen dioxide (NO_2).
2. Solid L is lead nitrate.
3. White precipitate is lead chloride.
4. Residue M is lead monoxide (PbO).
5. The chemical formula for brown ring is $Fe(NO)SO_4$.

D. Answer the following questions.

1. The precipitate is Iron(III) hydroxide which is reddish-brown in colour. Its formula is $Fe(OH)_3$.
2. Hydroxides of sodium and potassium are very soluble in water.
3. Ammonium hydroxide.

4. i. Iron [Ferrous (Fe^{2+}) and Ferric (Fe^{3+})].

   ii. Lead [Plumbous (Pb^{2+}) and Plumbic (Pb^{4+})].

5. Cu^{2+} ions (cupric ions).

E. A list of compounds is given below. From the list choose your answers.

1. Silver chloride, copper carbonate and barium sulphate are insoluble salts.
2. Ammonium chloride, sodium carbonate and sodium bisulphate are soluble salts.
3. Nitrogen dioxide, sulphur dioxide and carbon dioxide dissolve in water to produce acidic solutions.
4. Calcium hydroxide, sodium hydroxide and ammonia on dissolving in water form alkaline solutions.
5. Chlorine, bleaching powder and nitrogen dioxide are oxidizing agents.