WORKSHEET 1

CHAPTER 2 – CHEMICAL CHANGES AND REACTIONS

A. Tick (✓) the correct option.

1. A combination reaction is the opposite of which of the following reactions?
   a. Displacement reaction
   b. Double decomposition reaction
   c. Decomposition reaction
   d. Redox reaction

2. $Zn + H_2SO_4 \longrightarrow ZnSO_4 + H_2$

   The above reaction is
   a. decomposition reaction.
   b. displacement reaction.
   c. double reaction.
   d. photolysis.

3. A neutralisation reaction is a special type of
   a. precipitation reaction.
   b. double decomposition reaction.
   c. displacement reaction.
   d. decomposition reaction.

4. The heat content of a system is called
   a. enthalpy. b. internal energy. c. exothermic reaction. d. endothermic reaction.

5. Burning of coal is an example of
   a. exothermic reaction.
   b. decomposition reaction.
   c. endothermic reaction.
   d. displacement reaction.

B. Fill in the blanks from the choices given within the brackets.

1. In a chemical reaction, no new atoms are created or _____ (destroyed/destructed)
2. Reactions that take place in the presence of light are called _____ (electrolysis/photochemical decomposition reactions)
3. A chemical reaction which is accompanied by the evolution of heat is called _____ (exothermic/endothermic) reaction.
4. The reaction in which a compound is decomposed by heat is called _____ (thermal decomposition/ decomposition) reaction.
5. _____ (Copper/Gold) can displace silver from silver nitrate but will not displace iron from iron (II) sulphate.

C. What will you observe?

1. When electricity is passed through water.
2. When iron nail is placed in copper (II) sulphate solution.
3. When lead nitrate solution is added to a solution of sodium sulphate.
4. When hydrogen peroxide is exposed to light.
5. When water is added to calcium oxide.

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

Class: IX Date: .....

D. Match the following.

1.	$Cl_2 + 2KBr \rightarrow 2KCl + Br_2$	Combination reaction
2.	$4HNO_3 \rightarrow 4NO_2 + 2H_2O + O_2$	Decomposition reaction
3.	$AgNO_3 + HCl \rightarrow AgCl\downarrow + HNO_3$	Displacement reaction
4.	$PbO_2 + SO_2 \rightarrow PbSO_4$	Precipitation reaction
5.	$NaOH + HCl \rightarrow NaCl + H_2O$	Neutralisation reaction

E. Answer the following questions.

1. What type of change occurs when hydrogen combines with chlorine?
2. Write an example of double decomposition reaction.
3. How would you categorise the following reaction? Give a reason to support your answer.

$$2NaCl \xrightarrow[\text{current}]{\text{electric}} 2Na + Cl_2$$

4. Give an example of a reaction where the following are involved.
   a. Heat
   b. Light.
5. Define the following terms.
   a. Neutralisation reaction
   b. Precipitation reaction
   c. Displacement reaction.

ANSWERS

WORKSHEET 1

A. Tick (✓) the correct option.

1. c 2. b 3. b 4. a 5. a

B. Fill in the blanks from the choices given within the brackets.

1. destroyed
2. photochemical decomposition reactions
3. exothermic
4. thermal decomposition
5. Copper

C. What will you observe?

1. When electricity is passed through water, water is decomposed to give hydrogen and oxygen.

$$2H_2O \rightarrow 2H_2 + O_2$$

2. When iron nail is placed in copper (II) sulphate solution, iron displaces copper from copper (II) sulphate solution and forms iron (II) sulphate solution.

$$Fe + CuSO_4 \rightarrow FeSO_4 + Cu$$

3. When lead nitrate solution is added to a solution of sodium sulphate solution, a white precipitate of lead sulphate is formed.

$$Pb(NO_3)_2 + Na_2SO_4 \rightarrow 2NaNO_3 + \underset{\text{(white ppt.)}}{PbSO_4\downarrow}$$

4. When hydrogen peroxide is exposed to light, hydrogen peroxide undergoes photochemical decomposition to give hydrogen and oxygen.

$$H_2O_2 \xrightarrow{\text{light}} H_2 + O_2$$

5. When water is added to calcium oxide, a large amount of heat is liberated along with the formation of calcium hydroxide.

$$CaO + H_2O \rightarrow Ca(OH)_2 + \text{heat}$$

D. Match the following.

1. $Cl_2 + 2KBr \rightarrow 2KCl + Br_2$	Displacement reaction
2. $4HNO_3 \rightarrow 4NO_2 + 2H_2O + O_2$	Decomposition reaction
3. $AgNO_3 + HCl \rightarrow AgCl\downarrow + HNO_3$	Precipitation reaction
4. $PbO_2 + SO_2 \rightarrow PbSO_4$	Combination reaction
5. $NaOH + HCl \rightarrow NaCl + H_2O$	Neutralisation reaction

E. Answer the following questions.

1. Direct combination reaction.

2. $BaCl_2 + H_2SO_4 \rightarrow \underset{\text{(White ppt)}}{BaSO_4\downarrow} + 2HCl$

3. The given reaction is electrolytic decomposition reaction because on passing electric current through sodium chloride solution, sodium chloride decomposes to give sodium metal and chlorine gas.

4. a. $ZnCO_3 \xrightarrow{\text{heat}} ZnO + CO_2$

   b. $2HI \xrightarrow{\text{sunlight}} H_2 + I_2$

5. a. A neutralisation reaction is a special type of double decomposition reaction in which acid reacts with a base to form salt and water as the only products.

   b. The reaction in which the radicals of the reactants interchange their places with each other such that one of the products is a precipitate is called **precipitation reaction.**

   c. The reaction in which a more reactive element displaces a less reactive element from its compound is called **displacement reaction.**