Answer Key

Worksheet

1a)Chemical change

b) Chemical change

c) Chemical change

d)Physical change

e) Physical change

2a)Electrolytic

b)Catalytic

c)Thermal

d)Photochemical

Homework from book

Objective questions

A1) c 2)d 3)d 4)c 5)b

B1)kinetic energy 2)photochemical reactions 3)Ferrous sulphide(FeS) 4)physical 5)changes

C1)True

2)True

3)False. Rate of reaction doubles for every 10^{o} C rise in temperature.

4)False. Acidified\ Acidulated water decomposes on passing electric current.

5)True.

E3)Some reactions take place only when the reactants are exposed to light. Such reactions are called photochemical reactions. Example -

$$H_2 + Cl_2 \xrightarrow{\text{diffused sunlight}} 2HCl$$

6)The kinetic energy of the molecules is maximum in gases. So the frequency of collision is also maximum in gases. Reaction will be facilitated most when the reactants are in the gaseous state.

8)When one or more substances undergoes a chemical change with the absorption or evolution of energy to give new substances , (products) this change is called a chemical reaction.

9)Burning of paper is a chemical reaction because:

a)New substances carbon dioxide and water are formed.

b) There is a change in mass on burning.

c) Energy is given out in the form of heat and light.

d)It is a permanent and irreversible change as the original paper cannot be got back.

11)

Physical Change	Chemical Change
1) Temporary change	1) Permanent change
2) No new substance is formed	2) New substances with different properties are formed
3) No change in composition of substance, only physical properties change	3) Composition of the substances change along with change in physical properties
4) Change can be easily reversed	4) Change is usually irreversible
5) No energy change	5) Gain or loss of energy
6) No change in mass	6) Change in mass of substances

12)A catalyst is a substance which increases or decreases the rate of a chemical reaction without itself undergoing any change. Example Manganese dioxide(MnO_2) acts as a catalyst in the preparation of oxygen from $KClO_3$. It brings down the temperature of the reaction to about 230^oC from 450^oC.

Promoter is a substance which increases the efficiency of a promoter. Example - Molybdenum acts as a promoter in Haber's process, increasing the efficiency of the catalyst finely divided iron in the manufacture of ammonia.

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Column A	Column B
1. Increase or decrease the rate of reaction	Catalyst
2. High pressure	Ammonia
3. Increase the efficiency of catalyst	Promoter
4. Reactions that take place when exposed to light	Photochemical reaction
5. Frequency of collision and rate of reaction is maximum	Gases

G) 1) $2Na + 2H_2O\ (cold) \longrightarrow 2NaOH + H_2\uparrow$ + heat energy

2) $2KClO_3 \xrightarrow{heat,\ MnO_2} 2KCl + 3O_2\uparrow$

3) $N_2 + 3H_2 \underset{\text{200-900 atm}}{\overset{\text{Fe/Mo 450}^o\text{ C}}{\rightleftharpoons}} 2NH_3$

4) $2SO_2 + O_2 \overset{V_2O_5\ 200\text{-}500\ atm}{\rightleftharpoons} 2SO_3$

5) $6CO_2 + 6H_2O \xrightarrow{\text{sunlight, chlorophyll}} C_6H_{12}O_6 + 6O_2$