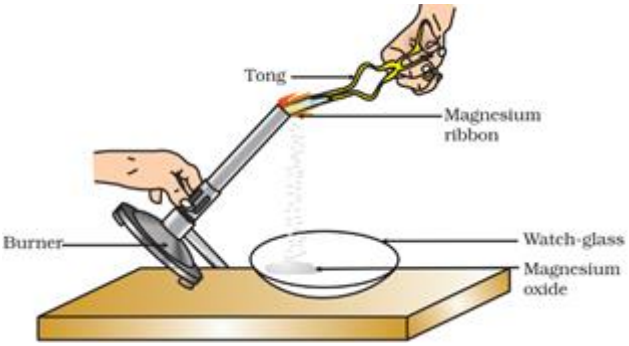
Name of the Chapter : Chemical Reactions and Equations

CASE BASED MCQs

I. Clean a magnesium ribbon about 2 cm long by rubbing it with sandpaper. Hold it with a pair of tongs. Burn it using a spirit lamp or burner and collect the ash so formed in a watch-glass.



1. Magnesium ribbon is rubbed before burning because it has a coating of

A. basic magnesium carbonate
C. basic magnesium sulphide
B. basic magnesium oxide
D. basic magnesium chloride

2. What is the colour of magnesium ribbon?

A. White
C. Grey
B. Black
D. Yellow

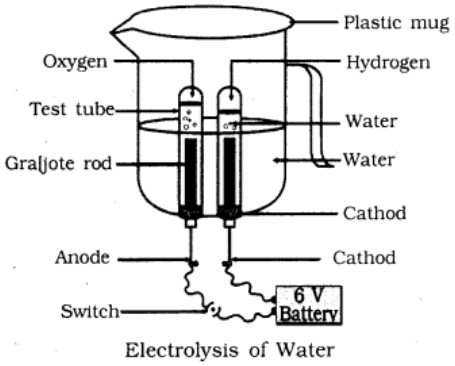
3. What is the chemical name of the powder obtained in the activity?

A. magnesium carbonate
C. magnesium sulphide
B. magnesium oxide
D. magnesium chloride

4. Which compound is formed when the powder obtained reacts with water?

A. Magnesium sulphate
C. Magnesium carbonate
B. Magnesium oxide
D. Magnesium hydroxide

II. Take a plastic mug, drill two holes at its base and insert carbon electrodes. Connect these electrodes to a 6 volt battery. Fill the mug with water such that the electrodes are immersed. Add a few drops of dilute sulphuric acid to the water. Take two test tubes



Electrolysis of Water

filled with water and invert them over the two carbon electrodes. Switch on the current and leave the apparatus undisturbed for some time.

1. What is the ratio in which hydrogen and oxygen are present in water by volume?

   A. 1:2
   B. 1:1
   C. 2:1
   D. 1:8

2. Which electrodes are used in this activity?

   A. Graphite
   B. Diamond
   C. Copper
   D. Coke

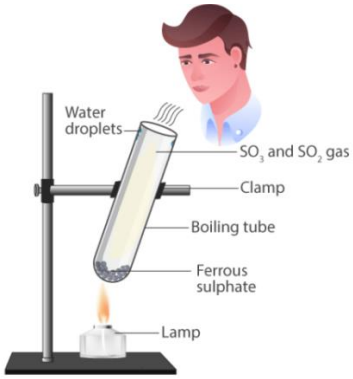
3. Where is hydrogen gas collected?

   A. Anode
   B. Cathode
   C. At both electrodes
   D. Hydrogen gas is not evolved in this activity

4. Which of the following is an endothermic process?

   A. Dilution of sulphuric acid
   B. Condensation of water vapours
   C. Respiration in human beings
   D. Electrolysis

III. Take about 2 g ferrous sulphate crystals in a dry boiling tube. Heat the boiling tube over the flame of a burner or spirit lamp. In this reaction you can observe that a single reactant breaks down to give simpler products. This is a decomposition reaction. Ferrous sulphate crystals (FeSO4, 7H2O) lose water when heated and the colour of the crystals changes. It then decomposes to ferric oxide (Fe2O3), sulphur dioxide (SO2) and sulphur trioxide (SO3). Ferric oxide is a solid, while SO2 and SO3 are gases.



1.What can we observe in this activity?

A. Water vapor is evolved
B. Change in colour
C. Smell of burning sulphur
D. All of the above.

2.What is the colour of iron oxide?

A.Brown B.Grey

C.Yellow D.White

3.What compound is formed when sulphur dioxide is passed through water?

A.Sulphuric acid B.Sulphurous acid

C.Hydrogen Sulphide D.Sulphur trioxide

IV: Read the following and answer the questions

The double displacement reaction is a type of chemical reaction. where two compounds react and the cation and anion of the two reactants 6 places forming 2 new products. The ionic compounds considered as reactants are water soluble. One of the products is formed as a precipitate or as a gas which is water soluble.

1. The reaction between lead nitrate and potassium iodide is an example of.

A) Combination reaction B) Decomposition Reaction

C) Displacement reaction D) Double displacement reaction.

2.What was the color of the precipitate formed when Lead nitrate reacts with Potassium iodide ?

A) Blue B) Red C) Yellow D) Orange

3. Which metallic spoon can be used to stir Lead nitrate solution ?

A)Sodium B)Silver C) Iron D) Aluminum

V. We have observed that iron articles are shiny when new, but get coated with a reddish brown powder when left for some time. This process is commonly known as rusting of iron. Some other metals also get tarnished in this manner. Have you noticed the colour of the coating formed on copper and silver? When a metal is attacked by substances around it such as moisture, acids, etc., it is said to corrode and this process is called corrosion.

1.The chemical formula of rust is

A) Fe_2O_3 B) Fe_3o_4 C) $Fe_2O_3\,XH_2O$ D) $Fe_{3O\,4.}\,XH_2O$

2. Which of the following metal is highly corrosive ?

A) Zinc B) Aluminum C) Gold D) Silver

3. If a metal under goes uniform corrosion it becomes

A) Thicker B) Perforated C) Thinner D) None of the above

ANSWER KEY :

I 1.A 2.C 3.B 4.D

II. 1.C 2. A 3.B 4.D

III.1.D 2.A 3.C

IV1.D 2.C 3.B

V 1.C 2.B 3.C

Following questions consists of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

A. Both assertionand reason are true, and reason is the correct explanation of assertion.

B. Both assertion and reason are true, but reason is not the correct explanation of assertion.

C. Assertion is true but reason is false.

D. Assertion is false and reason is true.

1)	**Assertion(A)**: After white washing the walls, a shiny white finish on walls is obtained after three or four days. **Reason(R)**: Calcium hydroxide reacts with Carbon dioxide to form Calcium Carbonate which gives shiny white finish.	1
2)	**Assertion(A)**: The number of atoms of each element remains the same, before and after a chemical reaction. **Reason(R)**: Any chemical equation can be unbalanced because the mass may not be same on both sides of the equation.	1
3)	**Assertion(A)**: Decomposition of Calcium Carbonate is a type of chemical reaction. **Reason**(R):Chemical reactions involve the breaking and making of bonds to produce new substances.	1
4)	**Assertion(A)**: The colour of salts does not depend on water of crystallisation. **Reason(R)**: Ferrous Sulphate crystals are blue in colour because of the seven water molecules of crystallisation.	1

5)	**Assertion(A)**: Brown fumes are obtained from the thermal decomposition of Lead Nitrate. **Reason(R)**: Nitrogen dioxide gas is released which is brown in colour.	1
6)	**Assertion(A)**: Acidification of water decreases its conductivity during electrolysis. **Reason(R)**: H^+ ions are released which hinder the flow of charges.	1
7)	**Assertion(A)**: Silver Chloride turns grey in sunlight. **Reason(R)**: This is an example of thermal decomposition	1
8)	**Assertion(A)**: Reaction between Barium Hydroxide and Ammonium Chloride makes the test tube cool to touch. **Reason(R)**: It is an example of endothermic reaction.	1
9)	**Assertion(A)**: Silver Bromide is used in black and white photography. **Reason(R)**: Silver Bromide decomposes in the presence of sunlight.	1
10)	**Assertion(A)**: In double displacement reactions, no precipitate is formed. **Reason(R)**:Barium Sulphate is precipitated during the double displacement reaction between Sodium Sulphate and Barium Chloride.	1
11)	**Assertion(A)**: The surface of copper powder becomes black on heating. **Reason**: Black colour copper oxide is formed.	1
12)	**Assertion(A)**: Addition of oxygen is oxidation. **Reason(R)**: Removal of oxygen is reduction.	1

13)	**Assertion(A)**: Oxidation and reduction take place simultaneously in a reaction. **Reason(R)**: All chemical reactions are redox reactions.	1
14)	**Assertion(A)**: Fatty foods taste the same even after long periods of exposure to air. **Reason(R)**: We should store oily foods in air tight containers.	1
15)	**Assertion(A)**: The glucose combines with oxygen in the cells of our body and provides energy. **Reason(R)**: Respiration is an example of oxidation reaction.	1
16)	**Assertion(A)**: Sulphur dioxide and Sulphur trioxides are released during the decomposition of iron sulphate. **Reason(R)**: This is an example of thermal decomposition.	1
17)	**Assertion(A)**: Iron nails turn blue colour copper sulphate solution to green colour. **Reason(R)**: Copper is more reactive than iron.	1
	ANSWERS:CHEMICAL REACTIONS AND EQUATIONS 1. A 2.C 3.A. 4.D 5.A 6.D 7.C 8.A 9.B 10.D 11.A 12.B 13.C 14.D 15.B 16.B 17 C	