

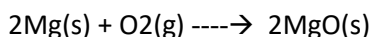


10th Chemical reaction and equation questions with solution 02

1 – Mark questions answer

1. What happens when magnesium ribbon burns in air?

Ans. When magnesium ribbon burns in air, it combines with the oxygen to form magnesium oxide.



2. Name the gas evolved when zinc reacts with dil. HCl.

Ans. Hydrogen gas is evolved.

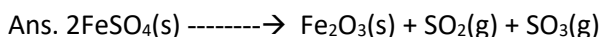
3. What is a chemical equation?

Ans. A chemical equation is a symbolic notation that uses formulae instead of words to represent a chemical equation.

4. On what chemical law, balancing of chemical equation is based?

Ans. Balancing of a chemical equation is based on the law of conservation of mass.

5. Represent decomposition of ferrous sulphate with the help of balanced chemical equation.



6. When carbon dioxide is passed through lime water, it turns milky, why?

Ans. Lime water (calcium hydroxide) combines with carbon dioxide to form a suspension of calcium carbonate which makes lime water milky. $\text{Ca(OH)}_2(\text{aq}) + \text{CO}_2(\text{g}) \rightarrow \text{CaCO}_3(\downarrow) + \text{H}_2\text{O}(\text{l})$

7. A zinc rod is left for nearly 20 minutes in a copper sulphate solution. What change would you observe in zinc rod?

Ans. Zinc rod will change into zinc sulphate.

8. What type of reaction is this: $\text{Na}_2\text{SO}_4 + \text{BaCl}_2 \rightarrow \text{BaSO}_4 + 2\text{NaCl}$

Ans. It is a double displacement reaction.

9. Identify the compound oxidized in the following reaction. $\text{H}_2\text{S}(\text{g}) + \text{Cl}_2(\text{s}) \rightarrow 2\text{HCl}(\text{g})$

Ans. H_2S is oxidized.

10. What is rust?

Ans. Rust is mainly hydrated iron (III) oxide, $\text{Fe}_2\text{O}_3 \cdot x\text{H}_2\text{O}$.

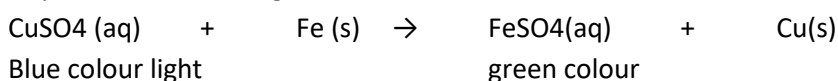
11. How does the food become rancid?

Ans. Food becomes rancid when fat and oils present in the food are oxidized.

2-marks Questions/ Answers

Q.1. An iron knife kept dipped in a blue copper sulphate solution turns the blue solution light green. Why?

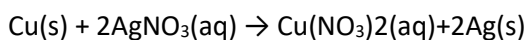
Ans. As we know iron is more reactive than copper. So, it displaces Cu from CuSO_4 solution and forms ferrous sulphate which is of Light Green Colour.





Q.2. A copper coin is kept in a solution of silver nitrate for some time. What will happen to the coin and the colour of the solution?

Ans: We know that copper is more reactive than silver, so it will displace silver from its salt solution:



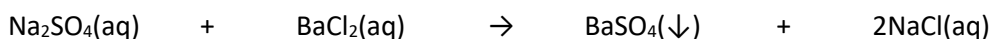
So the solution will turn blue due to the formation of copper nitrate.

Q.3. what do you understand by precipitation reaction? Explain with suitable examples.

Ans. Precipitate. When two reactants react and product formed remains insoluble and settles as a solid it is called a precipitate. Such reactions in which precipitate is formed are called precipitation reactions.

For example,

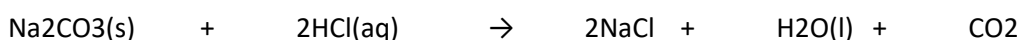
(i) When aqueous solution of sodium sulphate is mixed with the aqueous solution of barium chloride, barium sulphate comes in the form of white precipitate



(ii) When aqueous solution of sodium chloride is mixed with the aqueous solution of silver nitrate, silver chloride comes in the form of white precipitate.

Q.4. What is lime-water test for the detection of carbon dioxide?

Ans. When carbon dioxide gas is passed through lime water, it turns milky due to the formation of milky suspension (precipitate) of calcium carbonate. Carbon dioxide is produced by the action of dilute HCl on sodium carbonate.



Carbon dioxide gas produced in this reaction is passed through lime water it changes to milky colour due to the formation of calcium carbonate. $\text{Ca(OH)}_2(\text{aq}) + \text{CO}_2(\text{g}) \rightarrow \text{CaCO}_3 + \text{CO}_2(\text{g})$

3 Marks Questions/ Answers

Q.5. what is corrosion? State the conditions necessary for rusting of iron. How rusting is harmful?

Ans: Corrosion. The process of eating away of the metal by the action of atmospheric reagents changing the metal into its compound is called corrosion.

Rusting of Iron. :

When iron and iron objects are exposed to atmosphere, they are attacked by air and moisture (water) of the atmosphere and a brown and orange colored layer is formed on the surface. It is called rust which is mainly hydrated iron (iii) oxide $\text{Fe}_2\text{O}_3 \cdot x\text{H}_2\text{O}$.

Harmful Effect of Rusting. :

Hydrated iron (iii) oxide is brittle substance and moves away from the surface thus the object is damaged. The objects get holes, cavities and rough surface.

Conditions necessary for rusting:

(i) Open surfaces of the metal. (ii) Presence of air (Oxygen). (iii) Presence of moisture (water).

Q.6. what is rancidity? Write the common method to prevent it.

Ans. When food item are kept unprotected for some time, they give some unpleasant smell and taste and become





rancid. This process is called rancidity. Actually, the microorganisms oxidize the fat and oils present in them. So, oxidation of food items need to be prevented to protect them.

Common methods to Prevent Rancidity of Food item:

(i) Keeping the food at low temperature (ii) Keeping food item in air tight containers (iii) By filling nitrogen in the food storage bags.

Q.7. a. Why cannot a chemical change be normally reversed?

b. why is it always essential to balance a chemical equation?

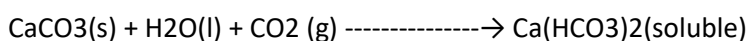
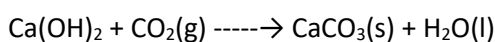
c. what happens when CO₂ gas is passed through lime water and why does it disappear on passing excess CO₂?

d. Can rusting of iron takes place in distilled water?

Ans: a. In a chemical change some bonds are broken and some bonds are formed. The products are quite different from the reactants. Therefore it normally can't be reversed.

b. A chemical equation has to be balanced to satisfy the law of conservation of mass.

c. On passing CO₂ gas through lime water, it turns milky due to formation of insoluble calcium carbonate which dissolves on passing excess CO₂ due to formation of soluble calcium bicarbonate.

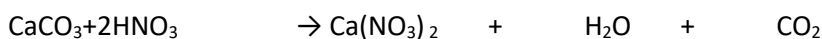


No, rusting of iron cannot take place in distilled water because it neither contains dissolved oxygen nor CO₂ both are essential for rusting of iron.

HOTS QUESTIONS (Chemical Reactions and Equations)

8.Q. The marble statues often slowly get corroded when kept in open for a long time .Assign a suitable explanation

Ans-SO₂, NO₂ gases are released into the atmosphere from various sources. These dissolve in rain water to give acid which corrodes marble statues



9.Q. You are given the following materials (a) marble chips (b) dilute hydrochloric acid (c)Zinc granules

Identify the type of reaction when marble chips and Zinc granules are added separately to acid taken in two test tubes.

Ans (a) marble chips react with dilute hydrochloric acid to form calcium chloride and carbon dioxide .it is a double displacement reaction $\text{CaCO}_3 + 2\text{HCl} \rightarrow \text{CaCl}_2 + \text{H}_2\text{O} + \text{CO}_2$

(b)Zinc granules react with dilute hydrochloric acid to give hydrogen gas. it is a displacement reaction

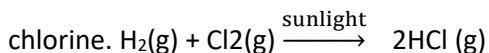




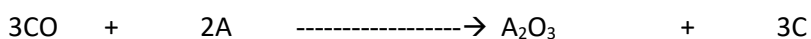
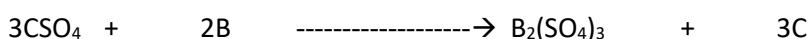
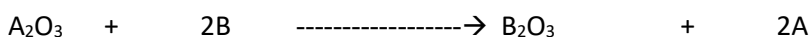
10. Q. The gases hydrogen & chlorine do not react with each other even if kept together for a long time .

However, in the presence of sunlight, they readily combine. What does actually happen?

Ans. In Chemical reactions, energy is needed to break the bonds present in the reacting molecules so that they may combine to form the products. In this reaction, sunlight is the source of energy in the form of photons. The energy made available by sunlight helps in breaking the bonds & this leads to chemical reaction between hydrogen &



11. Q. A, B and C are three elements which undergo chemical reactions in the following way



Answer the following (a) Which element is most reactive? (b) Which element is least reactive ?

Ans: (a) The most reactive element is 'B'. It has displaced both 'A' and 'C' from their compounds.

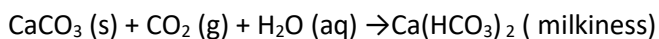
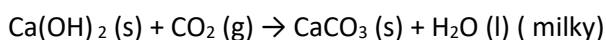
(b) The least reactive element is 'C' as it has been displaced by both 'A' and 'B'

12. Q. A water insoluble substance 'X' on reacting with dilute H₂SO₄ released a colourless and odourless gas accompanied by brisk effervescence. When the gas was passed through water, the solution obtained turn blue litmus red .

On bubbling the gas through lime water, it initially became milky and the milkiness disappeared when the gas was passed in excess. Identify the substance 'X' and write the chemical equations of the reaction involved .

Ans: the water insoluble substance 'X' is most probably metal carbonate (CaCO₃).

The chemical reaction that involved are given below



13.Q. Ahmad took a magnesium ribbon (cleaned) and burned it on a flame. The white powder formed was taken in a test tube and water was added to it. He then tested the solution formed with red and blue litmus paper. What change was seen? Why?

Ans. Red litmus paper turned blue. Blue litmus paper remained blue.

This is because the magnesium ribbon on burning in air forms the white magnesium oxide. Which dissolved in water, it forms magnesium hydroxide, which is Basic in nature.

14.Q. Give one example of a combination reaction in which an element combines with a compound to give you a new compound. Ans. $\text{O}_2 + 2\text{SO}_2 \rightarrow 2\text{SO}_3$ and $8\text{NH}_3 + 3\text{Cl}_2 \rightarrow 6\text{NH}_4\text{Cl}$