**Chapter- 6**

**Physical and Chemical change**

**Short answer type question:**

1. **What is galvanisation ?**
2. **Define crystalisation.**
3. **How can rusting of iron articles be prevented?**
4. **Why do ships get damaged in spite of being painted ?**
5. **Distinguish between physical and chemical changes.**

**Answer**

**Ans.1 The process of coating a thin layer of protective metals like zinc and chromium on the surface of iron article by passing electric current is called galvanization .**

**Ans2. The process of Obtaining crystal of pure substance from a saturated solution is called as crystallisation.**

**Ans3.iron from rusting can be prevented by following methods :**

**1.By coating it with oil or grease.**

**2.By painting the iron objects with paint.**

**3. By galvanising iron object using zinc or chromium that remain unaffected to air and water.**

**4. By mixing iron with corrosion resistant metal to make alloy. Ex. Stainless steel.**

**Ans4. Ship get damaged in spite of being painted because sea water contains many type of salt and salt increases the speed of rusting.**

**Ans5. *Physical change***

1. **No new substance is formed in physical change.**
2. **Physical change is a temporary change and easily reversible.**
3. **Very little energy in the form of heat is absorbed or given out in physical change.**

***Chemical change***

1. **Anew substance is formed in chemical change.**
2. **Chemical change is permanent and usually Irreversible .**
3. **A lot of energy in the form of heat light sound is absorbed or given out in chemical change**

**II. long answer type question**

1. **What is rust ?How is it formed?**
2. **What happens when an iron nail is dipped in copper sulphate solution?**
3. **With the help of an experiment explain that burning of magnesium ribbon is a chemical change.**

**Answer**

**Ans1. When an iron object is left in damp air or water for a considerable time it gets covered with the Red Brown flaky layer of substance called rust this is called rusting of iron. during the rusting of iron iron metal combine with oxygen of air in the presence of water to form a compound iron oxide. this iron oxide is rust the process of rusting can be represented by the following equation:**

**Iron + oxygen = Ironoxide (rust)**

**Condition necessary for rusting are:**

1. **Presence of oxygen of air**
2. **Presence of water or water vapour called moisture**

**Ans2. when an iron object like Iron needle is kept immersed in the blue coloured solution of copper sulphate, then a chemical change take place to form green coloured iron sulphate solution and a brown deposit of copper on the iron needle.**

**Copper sulphate solution(blue) +Iron (grey)= Iron sulphate solution (green) +copper (brown)**

**the reaction between copper sulphate solution and iron is a chemical change because it produces to new substance iron sulphate solution and copper.**

**Ans3. Take a small piece of magnesium ribbon and clean it rubbing its surface with sand paper. Hold it with pair of tongs and burn it on burner. The magnesium starts burning collect ash of magnesium in watch glass. Magnesium burn in presence of oxygen so it forms magnesium oxide.**

**Mg( magnesium) + oxygen = magnesium oxide**

**Take magnesium oxide ash in a hard glass test tube add small amount of water to it. stir the magnesium oxide and water mixture carefully. now test magnesium oxide solution with blue Litmus Paper and red litmus paper.**

**Magnesium oxide + water =magnesium hydroxide**

**Red litmus turn blue this shows that magnesium hydroxide is a base and blue litmus remain same.**

**Hots**

1. **why stainless steel utensils do not rust on exposure to air?**

**Ans. Stainless steel contains iron, chromium, manganese, silicon, carbon and, in many cases, significant amounts of nickel and molybdenum. Chromium present in the steel reacts with oxygen to form a protective oxide layer. The presence of the stable film prevents additional corrosion by acting as a barrier that limits oxygen and water access to the underlying metal surface.**

1. **why do people living in coastal area have to make efforts to protect iron objects from rusting?**

**Ans. The important components for rusting are iron, oxygen, and moisture. In coastal areas, the content of moisture in the air is high, so the process of rusting is faster.**

**multiple choice question**

1. **crystallization is a -physical change.**
2. **rusting of iron requires - both air and water.**
3. **limewater turns milky when -carbon dioxide gas is passed through it.**
4. **when an iron nail is dipped in copper sulphate solution and kept undisturbed for an hour-**

**chemical change take place ,the solution turns blue to green and brown layer is deposited on the nail.**

1. **crystal of pure substance are obtained by the process of - crystallization**
2. **iron -will get most affected by air and moisture .**

**complete the equation given below:**

1. **Magnesium + oxygen =magnesium oxide**
2. **Magnesium oxide + water = magnesium hydroxide + hydrogen**
3. **Copper sulphate + iron = Ironsulphate + copper**
4. **Carbon - di - oxide + limewater = calcium carbonate + water**