



Class - VII Science Classwork Notes July

5. Physical and Chemical Changes

I. Technical Words:

1. Physical change - a change where no new substance is formed.
2. Crystallisation - the process by which crystals are formed artificially from a solution.
3. Chemical Reaction - the process in which substances undergo a change to form new Substances.
4. Reactants - substances that take part in a chemical reaction.
5. Products - new substances formed as a result of a chemical reaction.
6. Galvanisation - coating of Iron objects with a layer of zinc.

II. Short answer Questions:

1 . Define reactants and products with examples.

Reactants are the substances that undergo a chemical change, and products are the new substances formed as a result. For example, in the reaction of hydrogen and oxygen are the reactants, and water is the product.

2. How can browning of the cut surfaces of some fruits and vegetables be prevented?

Browning of cut surfaces of fruits and vegetables can be prevented by applying lemon juice or other acids, or by keeping them in airtight containers to reduce exposure to air and moisture.

3. Define combustion and give an example?

Combustion is a chemical reaction in which a substance combines with oxygen, often accompanied by the release of heat and light. An example is the burning of paper, where paper combines with oxygen to produce carbon dioxide and water vapour.

IV. Long Answer

1. Describe the procedure by which pure crystals of common salt can be produced.

Procedure to Produce Pure Crystals of Common Salt: The salt obtained by evaporation is dissolved in boiling water until it becomes a saturated solution. The solution is then left undisturbed until crystals of salt form. These crystals are pure. Filter the solution to separate the solid salt crystals from the remaining liquid. Dry the collected crystals to obtain pure salt.

2. Why does iron rust? How can you prevent the rusting of iron objects?

Iron rusts when exposed to air (oxygen) and moisture to form a reddish substance called iron oxide. Iron objects will not rust if they are not exposed to moist air. Iron objects can be oiled or painted or coated with a layer of zinc (galvanised) to prevent the surfaces of these objects from coming into direct contact with atmospheric oxygen and moisture.

VI. Assertion and Reasoning Type Questions :

Note :- Mark the correct choices as

Assertion and reasoning type questions.

Note : Mark the correct choice as :

Option A: Both (A) and (R) are true, and (R) explain (A)

Option B: Both (A) and (R) are true, but (R) does not explain (A)

Option C: (A) is true and (R) is false

Option D: (A) is false and (R) is true

Chapter - 5 Physical and chemical changes

1. Assertion (A) : Formation of rust is a chemical change.

Reason (R) : For formation of rust, iron must be exposed to air and water.

Ans : option B

2. Assertion (A) : Burning of a candle is a physical change.

Reason (R) : The products formed by burning a candle cannot be easily converted back to original candle.

Ans : option D

6. Acids, Bases and Salts

I. Technical Words:

1. **base** - oxides, hydroxides, carbonates and bicarbonates of metals that are bitter to taste and slippery to touch.
2. **Alkali** - a base that can be dissolved in water.
3. **Neutralisation** - the reaction between an acid and a base to produce salt and water.
4. **Salt** - the substance formed when an acid reacts with a base.

II. Short Answer Questions:

1. **State two physical and two chemical properties of acids.**

Physical properties: (i) All acids are sour to taste. (ii) They turn blue litmus red.

Chemical properties: (i) Acids react with metals to form salt and hydrogen gas. (ii) On reaction with carbonate or bicarbonates, they form salt, water and carbon dioxide.

2. **Define alkali. What is the relationship between alkalis and bases?**

Those bases which are soluble in water are known as alkalis. Therefore, all alkalis are bases but all bases are not alkalis. Potassium hydroxide (KOH) and sodium hydroxide (NaOH) are examples of alkalis.

3. **What is a universal indicator?**

Methyl orange and phenolphthalein are two synthetic indicators.

4. **Define neutralisation with an example.**

Baking powder contains sodium bicarbonate and an edible acid which react with each other and release carbon dioxide when added to cake batter. The gas escapes through the batter making it porous. This makes the cake soft and spongy when baked.

IV. Long Answer

1. **What are the different types of acids? Name four acids and list their uses.**

Acids can be classified depending on their source and their strength.

Depending on the source, acids are of two types: organic and mineral. Acids that come from living things such as plants and animals are called organic acids. Acetic acid is an example of organic acid. Mineral acids are formed from minerals found on land, in water or in air. Example: hydrochloric acid.

Depending on the strength, acids are of two types: strong acids and weak acids. Strong acids are highly reactive and corrosive and they can cause severe burns so they must be carefully handled. For example: Nitric acid. Weak acids are less corrosive. These are generally organic acids. For example: Acetic acid. *Acids and their uses:* (i) Hydrochloric acid is used to clean and remove dust and as a cleaning agent. (ii) Sulphuric acid is used to refine petroleum and to make car batteries. (iii) Nitric acid is used in the extraction and purification of gold and silver and to manufacture fertilisers. (iv) Acetic acid is used in cooking and production of photographic film.

2. State the properties of bases. List the uses of two strong bases.

1. *The properties of bases are as follows:* (i) Bases are bitter to taste. (ii) Bases have a slippery or soapy touch. (iii) Most bases are insoluble in water. The bases that dissolve in water are known as alkalis.
(iii) Bases turn red litmus paper blue. (v) On reaction with acids, they form salt and water.

Uses of bases: (i) Sodium hydroxide is used in preparation of soaps and detergents, and manufacture of paper, plastic and textiles. (ii) Calcium hydroxide is used to whitewash buildings, to treat sewage and in preparation of bleaching powder.

2. List five daily uses of neutralisation.

Daily uses of neutralisation: (i) Formic acid injected by the bite of an ant is neutralised with calamine lotion that contains zinc oxide which is a mild base. (ii) Due to acid rain, soil becomes acidic which is treated by the farmers by adding bases like quicklime or slaked lime. (iii) Acidic factory wastes are neutralised with a base such as slaked lime before they are released in the rivers and lakes. (iv) Acidity in the stomach is treated with antacids that contain mild base which neutralise the excess acid and relieves us of the pain. (v) Toothpaste is mildly basic which neutralises the acid produced by bacteria that feed on food that gets stuck in the teeth and destroy enamel.

V. Images - based question.

1. The following image shows the colours of different solution with red cabbage indicator added to them. Labels the solution based on their acidity or basicity.

Red or pink coloured solution are acidic; Green or yellow coloured solutions are basic; blue is neutral

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1. Assertion (A): Salt may be acidic, basic or neutral in nature.

Reason (R): Lime juice is of acidic nature because it contains citric acid.

Ans : Option B

2. Assertion(A)- The reaction between an acid and a base is known as neutralisation reaction.

Reason(R)- The neutralisation reaction forms salt and water as a product.

Ans : Option A