

### THIRD TERM E-LEARNING NOTE

**SUBJECT: CHEMISTRY**

**CLASS: SS 1**

#### SCHEME OF WORK

WEEK	TOPIC
1.	Revision /Acids: Properties, Preparation and Uses. pH Scale
2-3.	Bases: Properties, Preparation. Salts: Classification, Methods of preparation, Types and Characteristics
4.	Carbon- Allotropes and their Structures, Properties, Differences between Diamond and Graphite.
5.	Carbon (ii) Oxide (CO), Carbon (iv) Oxide (CO <sub>2</sub> ): their Preparation, Properties and Uses.
6.	Coal: Types of Coal, Destructive Distillation of Coal, Uses of the Products, Coke: Gasification and Uses.
7.	Metallic Carbonate: Occurrences, Preparation and Uses, Test for Trioxocarbonate ion. Trioxocarbonate (iv) acid: Preparation, Properties and Uses.
8-9.	Introduction to Hydrocarbons: Sources of Hydrocarbons, Classification of Aliphatic Hydrocarbons. Petroleum and Natural gases: Refining of Petroleum by Fractional Distillation, Uses of different Fractions, Cracking of Petroleum (Thermal and Catalytic), Anti-knock and Octane rating.
10.	Applied Chemistry: Raw material used in Chemical industries and their Sources. Division of the Chemical Industries: Heavy chemicals, Fine chemicals, Fertilizers, Plastics, Metallurgy, Pharmaceutical, Glass, Ceramics, Cements, Soap and Detergents.
11.	Revision.
12-13.	Examination

#### REFERENCE MATERIALS

New School Chemistry for Senior Secondary Schools by Osei Yaw Ababio

New System Chemistry for Senior Secondary Schools by Tan Yan Ton et al

WAEC past Questions and Answers

UTME past Questions and Answers

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## WEEK ONE

### TOPIC: REVISION/ACIDS

#### CONTENT

- Definition.
- Properties.
- Preparation and uses.
- pH.

#### ACIDS

Definition: An acid is substance which in aqueous solution produces hydroxonium ion ( $\text{H}_3\text{O}^+$ ) or hydrogen ion ( $\text{H}^+$ ) as the only positive ion. Also, acids can be referred to as proton donor.

#### CLASSES OF ACIDS

There are two classes of acids:

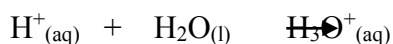
(1). Organic acids occur as natural products in plants and animal material.

Organic acids	Source
Ethanoic acids	Vinegar
Lactic acids	Milk
Citric acids	Lime, Lemon
Amino acids	Proteins
Fatty acids	Fats and oils
Ascorbic acids (Vitamin C).	Oranges

(2). Inorganic acid: Inorganic acid can be prepared from mineral elements or inorganic matter.

Inorganic acid	Formula	Constituents
Hydrochloric acid	HCl	Hydrogen, Chlorine
Tetraoxosulphate(VI) acid	$\text{H}_2\text{SO}_4$	Hydrogen, Sulphur & Oxygen
Trioxonitrate(VI) acid	$\text{HNO}_3$	Hydrogen, Nitrogen & Oxygen

An acid is also defined as a substance which produces hydroxonium ion as the only positive ion when dissolved in water.

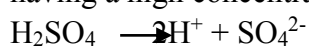


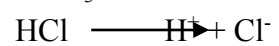
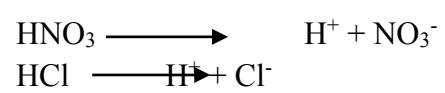
Acid can be dilute or concentrated depending on the amount of water added. A dilute acid is acid produced when a large amount of water is added to a small amount of acid. A concentrated acid is acid produced when only a little amount of water is added to a relatively large amount of acid.

#### STRENGTH OF AN ACID

The strength of an acid can either be weak or strong.

(1) Strong acids: are acids which ionize completely in aqueous solution and such acid solution having a high concentration of  $\text{H}^+$ . Examples are HCl,  $\text{H}_2\text{SO}_4$  and  $\text{HNO}_3$ .





(2) Weak acids: are acids which ionize or dissociate slightly or partially in aqueous solution and such acid solution have a...

