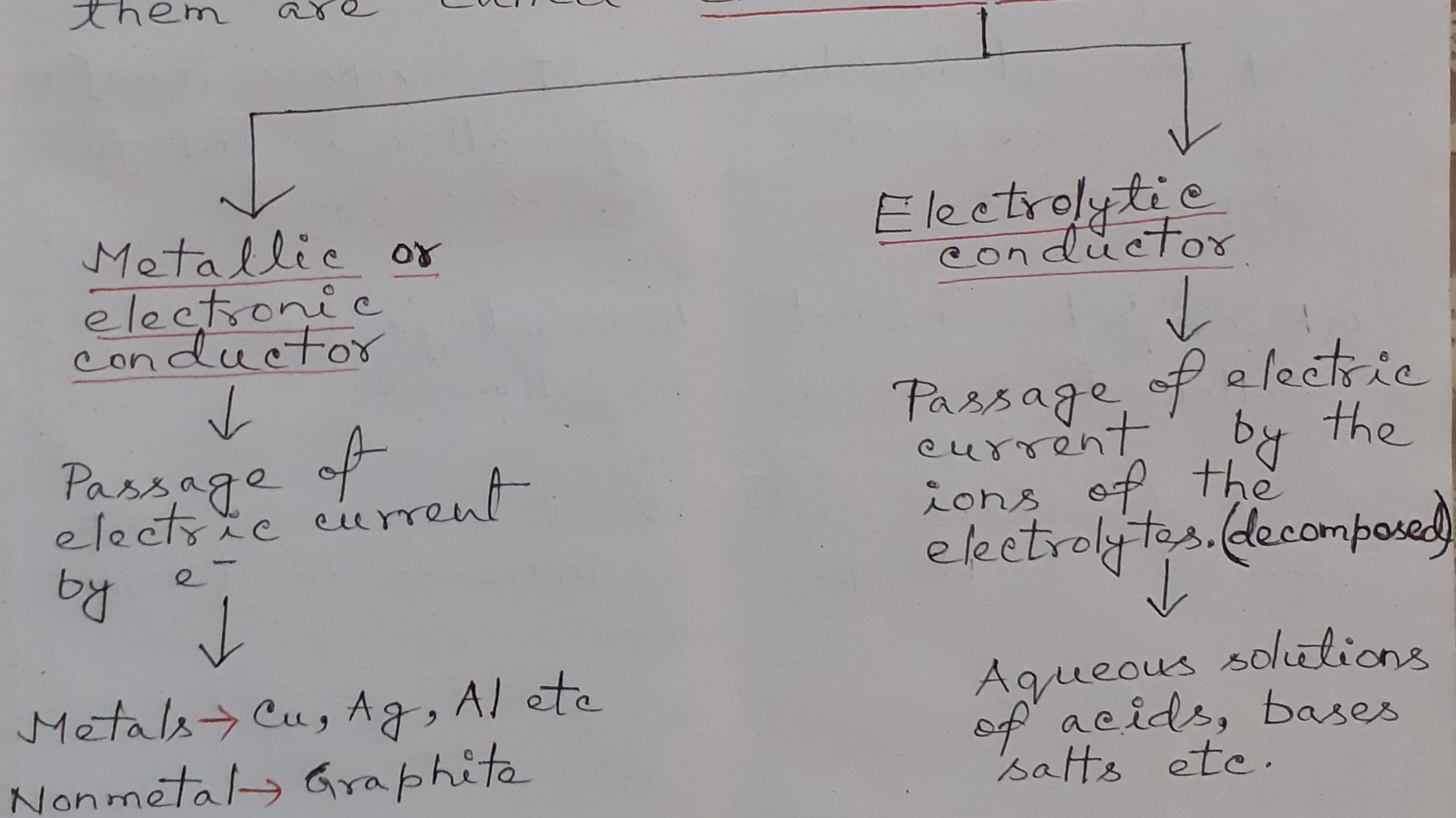


## Electrochemistry

The branch of chemistry which deals with the relationship between chemical energy and electrical energy & their interconversion is called as electrochemistry.

Conductor → Substances which allow the passage of electric current through them are called electrical conductors.





## Distinction between metallic and electrolytic conduction

### Metallic conduction

1. Electric current flows by movement of electrons.
2. No chemical change occurs.
3. It does not involve the transfer of any matter.
4. Faraday's law is not followed.
5. It decreases with increase in temp.

### Electrolytic conduction

1. Electric current flows by movement of ions.
2. Ions are oxidised or reduced at the electrodes.
3. It involves transfer of matter in the form of ions.
4. Faraday's law is followed.
5. It increases with increase in temp.



## Ohm's law

The electric current flowing through a conductor is directly proportional to the potential difference applied and inversely proportional to its resistance.

$$I = \frac{V}{R}$$

$$V = IR$$

V → Potential diff. (volt)

I → Electric current (ampere)

R → Resistance (ohm  $\Omega$ )

## Conductivity

The capacity or power of the electrolyte to conduct electric current through the solution is known as conductivity or conductance.

OR

The term conductivity or conductance means the ease with which a current flows through a conductor.

It is actually the reciprocal of resistance.

$$C = 1/R$$



$$G = 1/R$$

$G \rightarrow$  Conductance

$R \rightarrow$  Resistance

Unit of conductance is  $\text{ohm}^{-1}$  or mho. In S.I unit  $G \rightarrow$  Siemen (S).

## Resistance

Resistance is that which measures the obstruction to the flow of current. Its unit is  $\text{ohm} (\Omega)$

## Factors on which conductance depends.

- (i) The number of ions of the electrolyte
- (ii) velocity or mobility of ions.
- (iii) Amount of charge carried by ions.
- (iv) Temperature of the solution.