Electricity

Static Electricity :- "Electrification of object by rubbing with each other is called Static electricity.

Note :- Static electricity is also called frictional electricity.

Electricity - Continuous flow of charge through the conductor wire from it's one end to other, is called electricity.

~~Chage~~ Charge (Q, q) :- It is the surface property which is produces by the Electro-static force.

Note :- charge is discovered by ~~(Coloumb)~~ (Coulomb) - "1905"

Electro-static force :- It is a type of Non-contact force which is exerted b/w two charge.

* Coulomb's law -

When two charges are intracting b/w each other, then the force (Electro-static force) exerted b/w two charges must be directly proportional to the product of their charges and inversely proportional to Square of it's distances

P.T.O

Let, q_1 and q_2 are two charges, which is placed b/w each other at (r) distances.
then,
A/q coulomb's law.

$$F \propto q_1 q_2 \quad \text{——— (1)}$$

$$F \propto \frac{1}{r^2} \quad \text{——— (11)}$$

Now, From eq'(1) and eq'(11)

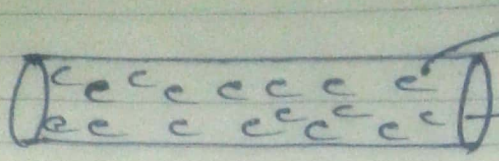
$$F \propto \frac{q_1 q_2}{r^2}$$

$$\boxed{F = K \cdot \frac{q_1 q_2}{r^2}}$$

Where,
K = Coulomb constant = $9 \times 10^9 \, Nm^2/C^2$
q_1, q_2 = charges
r = distance b/w charges.

Note :-
K is also written.

$$\boxed{K = \frac{1}{4\pi\epsilon_0}}$$ → Electric intensity.



Q. n electrons flow through a cross-section of a conductor in time (t). If charge of an electron is e.

→ Net charge or Total charge passes through the conductor, ie,

$$Q = n \times e$$

Where,
Q = Net charge.
n = No of electrons.
e = Charge of electron.

Note:- S.I unit of charge is coulom.C
It is denoted by C.
e = 1.6×10^{-19} C.

Q. Calculate the Net charge of a conductor If 6.25×10^{18} electrons are passes through the conductor.

Ans- In Next class.