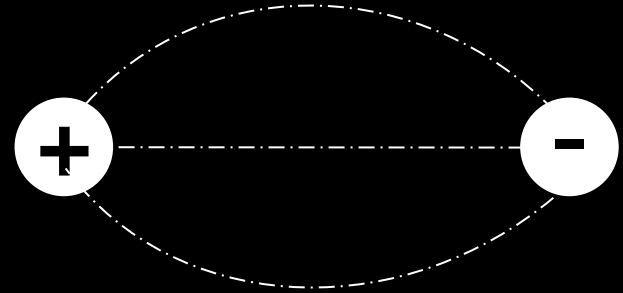


Introduction to Electricity



TOPICS TO BE DISCUSSED:

- ❖ Electric Charge and its Nature
- ❖ Properties of Electric Charge
- ❖ Conductors and insulators



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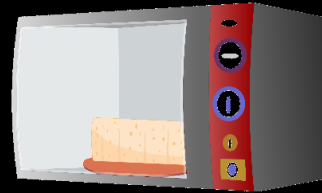
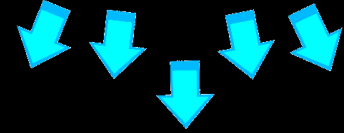
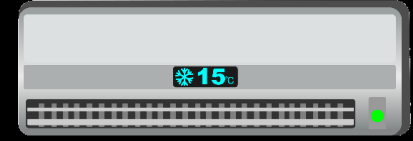
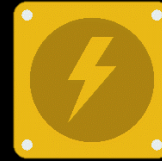
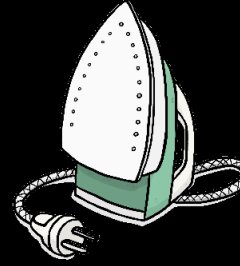
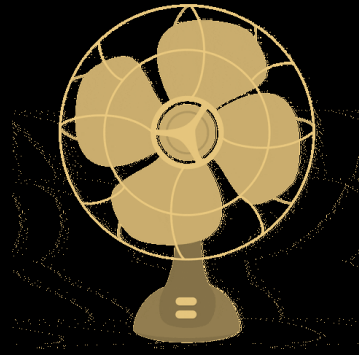
Electricity: Our Lifeline

→ Class 12

B. Tech

→ { E E E }
→ { E C E }

Electricity: Our Lifeline

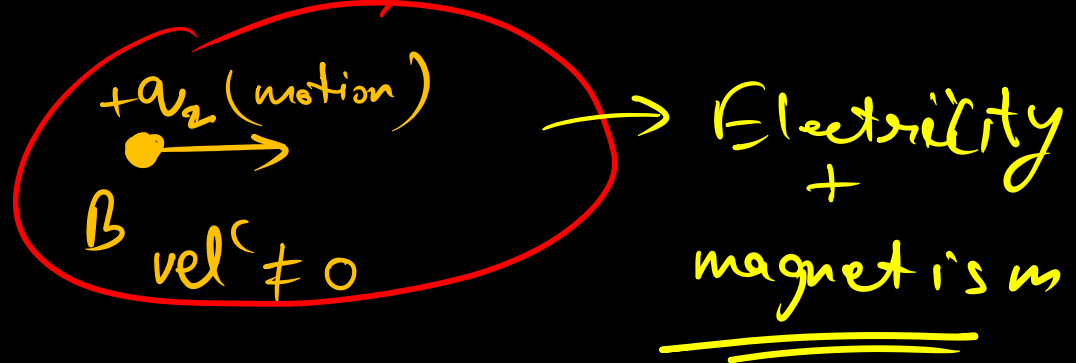
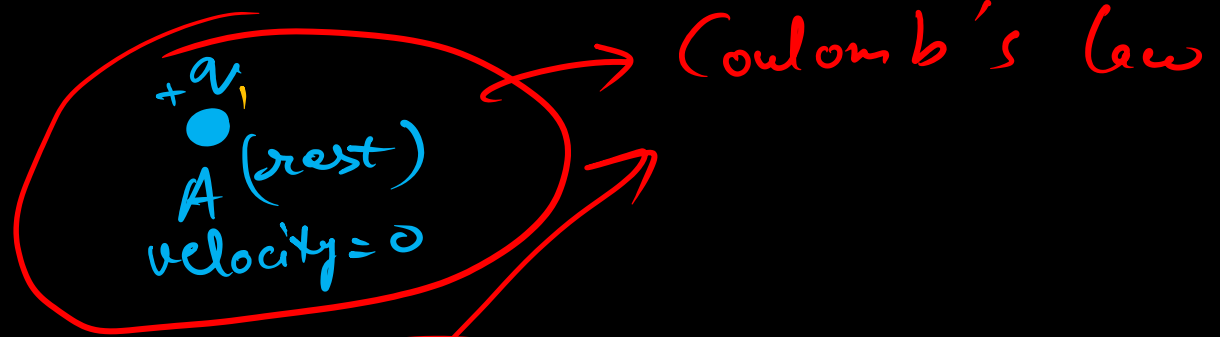


Electric Charge

→ mass ✓
→ charge =

internal

Charge is an intrinsic property of matter.



Electric Charge

Charge is an intrinsic property of matter.

Electric charge at rest



An imbalance of charge
cause static electricity

Electric charge in motion

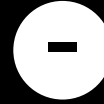


Charges in motion produce
dynamic electricity

Types of Charge

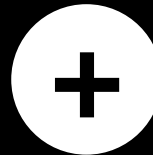


Positive Charge
(Proton)



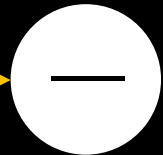
Negative Charge
(Electron)

Usually, all matter composed of atoms, contains equal number of positive and negative charge



Loss of electrons

Transfer of electrons

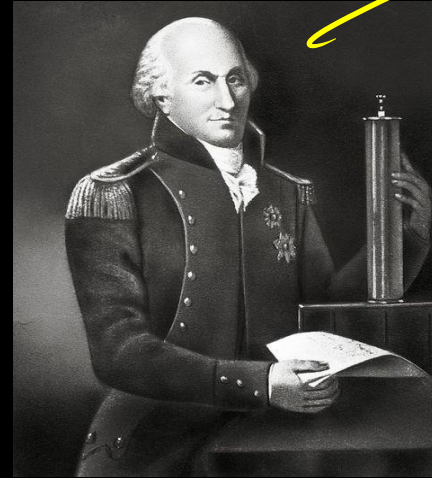


Excess of electrons

SI Unit of Charge: **Coulomb**

SI unit of electric charge is **coulomb**

mC



Charles-Augustin de Coulomb

It is denoted by the letter **C**

Quantization of Charge

$2e, 3e, 4e, 5e,$
 $-2e, -3e, -4e$

Charge always exists in integral multiple of e

$$Q = \pm ne$$

where, $e = 1.6 \times 10^{-19} \text{ C}$ ←
 $n = 0, 1, 2, \dots$ →

$-10, -9, -8, 2, 3, 4, 100$

Quantization of Charge $\rightarrow Q$

A

$$Q = 2.2 \text{ C} \quad \checkmark$$

$n = \text{integer}$

$$Q = \pm ne$$

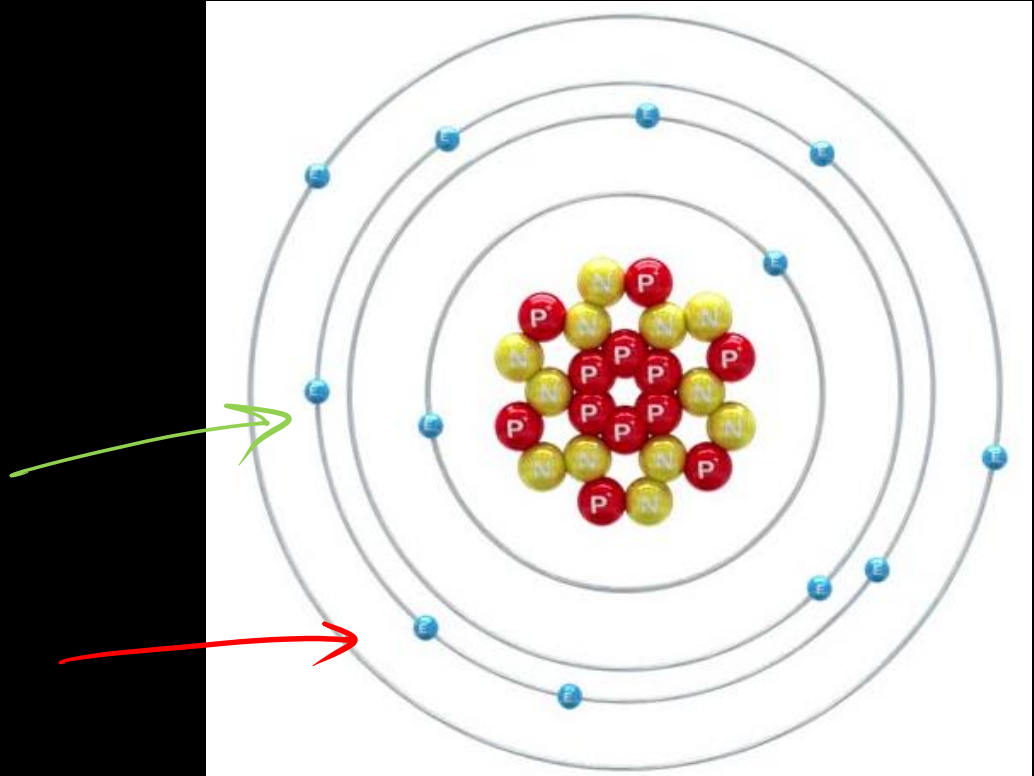
$$e = 1.6 \times 10^{-19} \text{ C}$$

$$2.2 \text{ C} = n \times (1.6 \times 10^{-19}) \text{ C}$$

$$n = \frac{2.2}{1.6 \times 10^{-19}} = \left(\frac{22}{16} \right) \times 10^{19} \text{ C}$$

↑

Electronic Configuration of Conductor

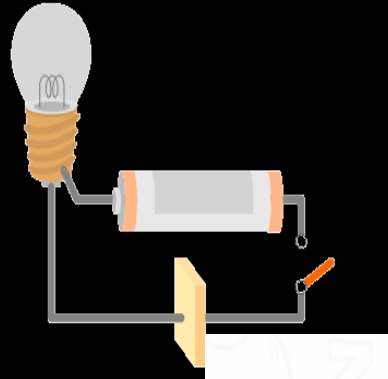


Conductors & Insulators

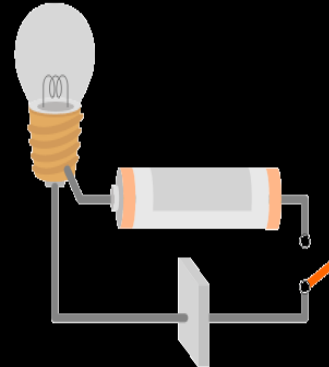
Conductors: All metals like copper, silver, aluminum etc.

Insulators: Glass, Rubber, Plastic, Paper etc.

Insulators



Conductors



Bonus Question

What is the net charge present in a body that has 100 electrons more than protons?



A -1.6×10^{-17}

B -1.6×10^{-18}

C -1.6×10^{-19}

D -1.6×10^{-20}

SCHEDULE

DATE	TIME	TOPIC	FACULTY
5-May	3:00 PM	Short Story	Rumana Ma'am
5-May	4:00 PM	Life Processes – Part I	Sona Sir



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