

TWO MARKS QUESTIONS AND ANSWERS

1. What is Electrostatics?

The branch of electricity which deals with stationary charges is called electrostatics.

2. What is called triboelectric charging?

Charging the objects through rubbing is called triboelectric charging.

3. Like charges repels. Unlike charges attracts. Prove.

1. A negatively charged rubber rod is repelled by another negatively charged rubber rod.

2. But a negatively charged rubber rod is attracted by a positively charged glass rod.

3. This proves like charges repels and unlike charges attracts.

4. State conservation of electric charges.

1. The total electric charge in the universe is constant and charge can neither be created nor be destroyed

2. In any physical process, the net change in charge will be zero. This is called conservation of charges.

5. State quantization of electric charge.

The charge 'q' of any object is equal to an integral multiple of this fundamental unit of charge 'e' i.e

$q = ne$ where, $n \rightarrow$ integer and $e = 1.6 \times 10^{-19}$ C.

Q.66. State Coulomb's law in electrostatics.

Coulomb's law states that the electrostatic force is directly proportional to the product of the magnitude of the two point charges and is inversely proportional to the square of the distance between the two point charges. According to Coulomb law, the force on the point charge q_2 exerted by another point charge q_1 .

$$\vec{F}_{21} = k \frac{q_1 q_2}{r^2} \hat{r}_{12}$$

where, k is constant and \hat{r}_{12} is a unit vector directed from q_1 to q_2 Coulomb force.

7. Define one coulomb (1 C)

The S.I unit of charge is Coulomb (C) One Coulomb is that charge which when placed in free space or air at a distance 1 m from an equal and similar charge repels with a force of 9×10^9 N.

Define relative permittivity.

From Coulomb's law, the electrostatic force is