

# Unit 9 – Electrostatics and Electric Circuits

## Static Electricity

There are two kinds of charges: protons (+) and electrons (-). Matter is neutral or uncharged because it contains an equal number of protons and electrons.

An object becomes charged positively because it loses electrons and an object becomes charged negatively because it gains electrons.

**Static Electricity** – the build up of electric charge

The Fundamental Law of Electric Charges:

- 1) Opposite charges attract.
- 2) Like (similar) charges repel.
- 3) Charged objects attract neutral objects.

### Methods of Charging

- 1) By Friction – two objects rub together and one of them “takes” electrons from the other.

2) By Contact (Conduction) – a charged object comes in contact with a neutral object and “shares” its charge with the neutral object.

3) By Induction – a charged object induces a charge on a neutral object.

Induced charges will return to an uncharged state once the charged object is removed, unless the object with the induced charge is grounded while the induced charge is still present.