

A conductor or a wire carrying current is neutral. That is, it has no net charge on it.

### 3.03.2 Electric Circuit

An electric circuit is a closed conducting path containing a source of electric energy (i.e., a cell or a battery) and a device or element or load (say, an electric bulb) utilizing the electric energy. In other words, a continuous and closed conducting path connecting a cell and a bulb is called electric circuit.

A simple electric circuit is shown in figure 5.

#### Open and Closed Electric Circuits

**Open electric circuit :** An electric circuit through which no electric current flows is known as open electric circuit.

The electric circuit shown in figure 6 (A) will be open circuit if the plug of the key is taken out or if the connecting wire breaks from any point.

**Closed circuit :** An electric circuit through which electric current flows continuously is known as closed circuit (Figure 6 (B)).

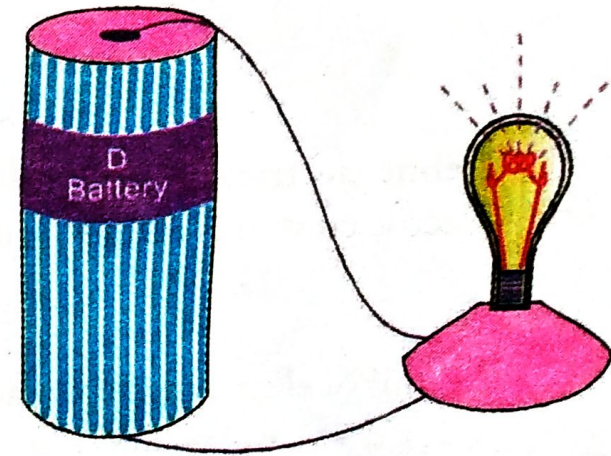
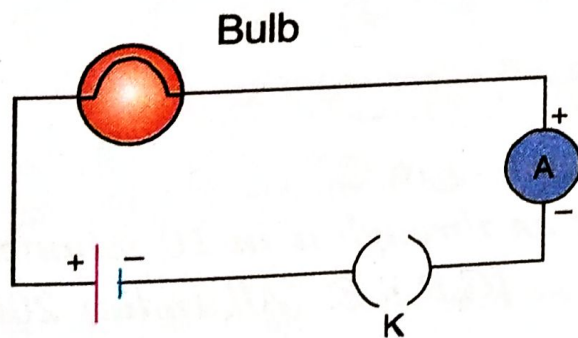
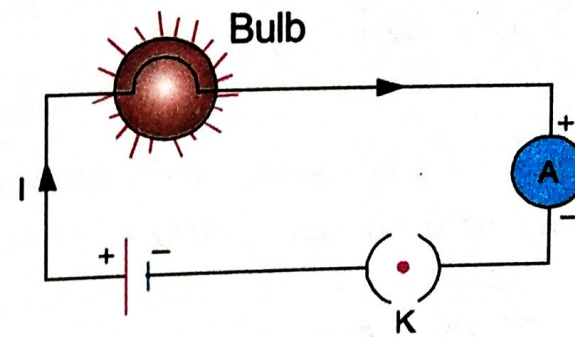


FIGURE 5. Simple Electric Circuit



(A)



(B)

FIGURE 6

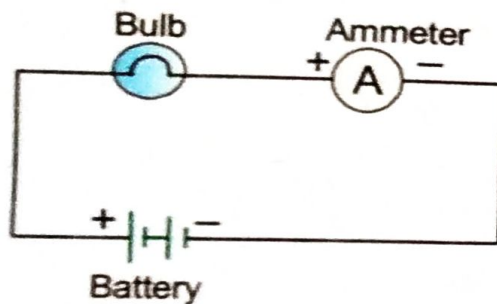


FIGURE 1

### How is an ammeter connected in an electric circuit ?

An ammeter is always connected *in series* in an electric circuit as shown in figure 1. When ammeter is connected in a circuit, its +ve terminal should be connected with the +ve terminal of a cell or battery and its -ve terminal should be connected with the -ve terminal of the cell or battery.

### How to read ammeter ?

**Least count of ammeter.** The minimum value of electric current measured by an ammeter is known as the **least count** of the ammeter. *The value of 1 division on the scale of ammeter is the least count of ammeter.* Let there are 10 divisions between 0 A mark and 1 A mark on the scale of ammeter. That is,

$$10 \text{ divisions} = 1 \text{ A}$$

$$\therefore 1 \text{ division} = \frac{1}{10} \text{ A} = 0.1 \text{ A.}$$

Hence, least count of ammeter = 0.1 A.

Let the pointer of the ammeter coincides with 8th division of the scale of ammeter. Therefore, reading of ammeter = 8 × least count of ammeter (A) = 8 × 0.1 A = 0.8 A.

**Remember :** *Ammeter of minimum least count measures current accurately.*

Ammeter is a low resistance device. Resistance of an ideal ammeter is zero.