Week 7:

CIRCUIT ELEMENTS

Current moves from a point of high potential energy to one of low potential. It can only do so if there is a path for it to flow. This path is called an electric circuit. All circuits contain four elements: a source, a load a transmission system and a control.

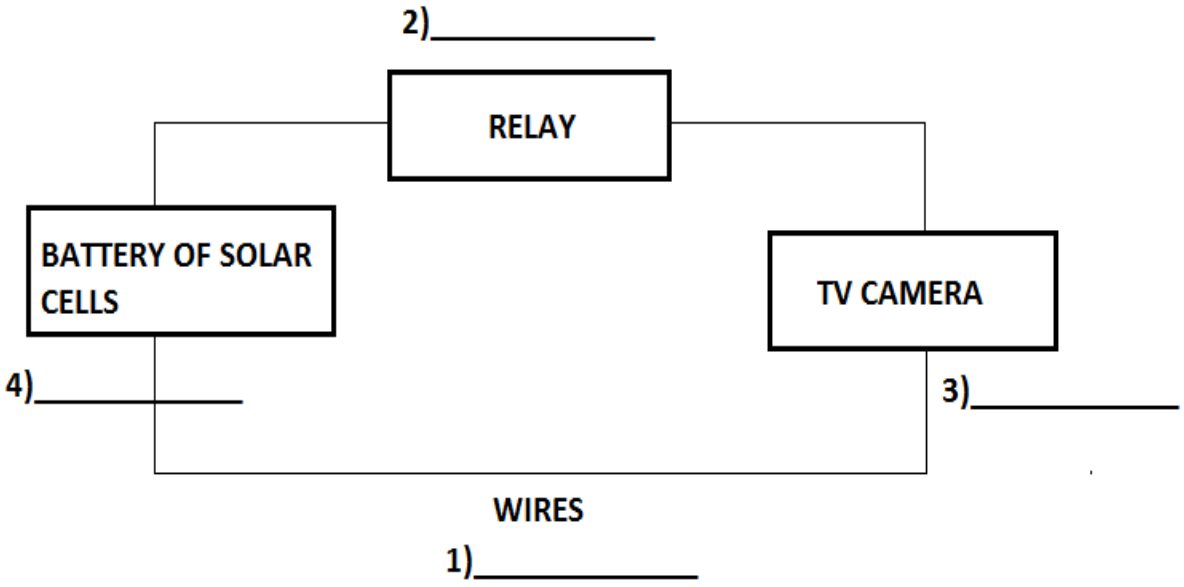
The source provides the electromotive force. This establishes the difference in potential which makes current flow possible. The source can be any device which supplies electrical energy. For example; it may be a generator or a battery.

The load converts the electrical energy from the source into some other form of energy. For instance, a lamp changes electrical energy into light and heat. The load can be any electrical device. The transmission system conducts the current round the circuit. Any conductor can be part of a transmission system. Most systems consist of wires. It is often possible, however, for the metal frame of a unit to be one section of its transmission system. For example the metal chassis of many electrical devices are used to conduct current. Similarly the body of a car is part of its electrical transmission system.

The control regulates the current flow in the circuit. It may control the current by limiting it, as does a rheostat, or by interrupting it, as does a switch.

✓ **Fill in the blanks with the correct words <u>from the box</u>.**

Control	Transmission system	Load	Source



The function of this circuit is to operate a TV camera aboard a space satellite. Here the source is a battery of solar cells. A solar cell is an electric cell which converts sunlight into electrical energy. The load is the TV camera. The transmission system is the connecting wires. The control is a relay actuated by transmissions from ground control. Although the function of this circuit is much more complex than that of the flashlight, it too consists of the four basic elements.

EXERCISE:

- ✓ **Rewrite the following sentences, replacing the words in italics with expressions from the passage which have a similar meaning.**

1) A lamp ***converts*** electrical energy into light.

_____.

2) The generator ***provides*** the circuit with electromotive force.

_____.

3) The metal ***frame*** of the oscilloscope is part of its transmission system.

_____.

4) The rheostat ***controls*** the current flow in the circuit.

_____.

5) A battery of solar cells ***supplies*** power to the circuit.

_____.