

## **Basic Electronics:**

Semiconductors – In the field of electronics, semiconductors are important materials used for fabricating various electronic devices and components like diodes, transistors, integrated circuits, LEDs, logic gates, etc. Semiconductors are those materials having electrical conductivity between conductors and insulators. The most commonly used semiconductors in electronics are silicon *Si* and germanium *Ge*

. Overall, semiconductor are fundamental building blocks of electronics.

Resistors – These are the commonly used circuit components in electronics. Resistors are used to control the amount of electric current in electronics circuits.

Capacitors – Capacitors are also basic circuit components in electronics used for storing electric charge and design circuits to perform signal filtering.

Inductors – Inductors are used in electronic circuits to store energy in the form of magnetic field and filter out the alternating current signals.

Transformers – Transformer is an electromagnetic device. It is used in electronic circuits to reduce the high voltage like 220 Volts into the lower values like 5 V, 12 V, 24 V, or any other suitable value for electronic circuits.

Diodes – Diodes are the most basic semiconductor devices. A typical diode consists of two semiconductor regions namely, p-type and n-type, thus have a pn-junction. It is used in electronic circuits as a unidirectional device or as a static switch. One of the most common application of diodes is rectification i.e., conversion of AC into DC.

Transistors – Transistors are three-terminal semiconductor devices used in electronics to perform two main functions namely, amplification and switching of electric signals. Transistors are the building blocks of most electronic circuits and complex devices.