

Aim of the Experiment :-

Study of Electronics Components and familiarization with components.

Equipments Required :-

- Resistor, Variable Resistance, Capacitor, Diode, BJT, OP, Amp.

Theory :-

Resistor - It is a component of an electrical circuit that resists the flow of electrical current. It has two terminals and is designated to drop the voltage of the current as it flows from one terminal to the other. It is used to create and maintain a known safe current within an electrical component.

Variable Resistance - These variable resistors consist of a resistance track with connections at both the ends and a wiper which moves along the track as you turn the spindle. These can be used as potentiometer.

Capacitor :- A capacitor is a passive electronic component that stores energy in the form of an electric field. There are two types of capacitor i.e. polarized and non-polarized depending upon whether electrolyte is used or not.

Diode: A p-type semiconductor diffused in a n-type semiconductor with a property to conduct electricity in only one direction is called a diode. PN-junction diodes are of two types i.e. germanium and silicon. Zener diode is used to maintain a fixed voltage and LED is the visible light.

Transistor: It is a semiconductor device used to amplify and switch electronic signal and power. It is composed of a semiconductor material with at least three terminals for connection to an external circuit.

Op-Amp: An Op-Amp or Operational Amplifier is fundamentally a voltage amplifying device, designed to be use with external feedback components such as resistors and capacitors between its output and input terminals. These feedback component determine the resulting function or "operation" of the amplifier and by virtue of the different feedback configurations whether resistive, capacitive or both, the amplifier can perform a variety of different operations, giving rise to its name of 'operational amplifier'. An operational amplifier is basically a three terminal device which consists of two high impedance inputs. One of the inputs is called the inverting input, marked with a negative or "minus" sign (-). The other input is called the non-inverting input marked with a positive sign (+).

The IC 741 Op-Amp looks like a small chip. The representation of 741 Op-Amp comprises of 8 pins. The most significant pins are 2, 3 and 6; where pins 2 and 3 denote inverting and non-inverting terminals respectively and pin 6 denotes output voltage. The triangular form in the IC signifies an Op-Amp integrated circuit. The current version of the chip is denoted by the famous IC 741 Op-Amp. The main function of this IC 741 is to do mathematical operations in various stages of transistor which commonly have 3 stages like differential i/p, a push-pull and an intermediate gain stage. The differential Op-Amps comprise a set of BJTs.

Wire :-

A single strand copper wire was tested in a multimeter in the continuity mode and was found to be continuous.

CONCLUSION :-

Characteristic property of various electronic components was measured and we get familiarized with all the basic components.