DIFFERENCES BETWEEN A CONTROLLED AND AN UNCONTROLLED RECTIFIER

1. The rectifier circuit using diodes only are called Uncontrolled rectifier circuit, while when SCRs (thyristor) are used to convert AC to DC, they have a controlled output voltage so it is called a Controlled rectifier output.
2. In an uncontrolled rectifier, once the SCR used is triggered into ON state, it has to be manually shut down by cutting off the source voltage while in a controlled rectifier, the gate pulse supplied to the thyristor can be used to automatically put output into ON or OFF mode.

DIFFERENCES BETWEEN SINGLE PHASE HALF-WAVE RECTIFIER AND A SINGLE PHASE FULL-WAVE RECTIFIER

1. The crucial difference between half wave and full wave rectifier is that a half waverectifier converts only one-half cycle of the ac input supplied into pulsating dc signal. As against a fullwave, rectifier converts both halves of the applied input signal into pulsating dc.
2. For the half wave, it makes use of 1 diode in the circuit while full wave makes use of 2 or 4 (It varies with the type of circuit)

OPERATIONAL CHARACTERISTICS OF A DIAC

The DIAC (diode for alternating current) is a diode that conducts electrical current only after its break over voltage, VBO, has been reached momentarily. The DIAC is a bi-directional semiconductor switch that can be switched on in both polarities. The full form of the name DIAC is diode alternating current. DIAC is connected back to back using two zener diodes and the main application of this DIAC is, it is widely used to help even activating of a TRIAC when used in AC switches, dimmer applications and starter circuits for florescent lamps.

OPERATIONAL CHARACTERISTICS OF A TRIAC

A TRIAC device comprises of two thyristors that are connected in opposite direction but in parallel but, it is controlled by the same gate. TRIAC is a 2-dimensional thyristor which is activated on both halves of the i/p AC cycle using + Ve or -Ve gate pulses. The three terminals of the TRIAC are MT1; MT2 & gate terminal (G). Generating pulses are applied between MT1 and gate terminals. The ‘G’ current to switch 100A from TRIAC is not more than 50mA or so. It can be functioned with either +Ve or –Ve gate control voltage but in typical operation generally the gate voltage is +Ve in first quadrant and -Ve in third quadrant. The supply voltage of the TRIAC to switch ON depends upon the gate current.