described.

Classification of Rectifiers

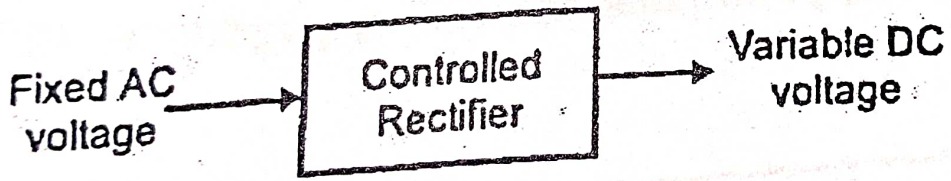
Rectifier circuits are mainly classified into two types.

i) Uncontrolled rectifiers

The uncontrolled rectifier converts fixed ac input voltage to a fixed dc output voltage. Here, power semiconductor devices are ***diodes.***

ii) Controlled rectifiers

A controlled rectifier converts fixed ac voltage to a variable dc voltage. This output voltage can be controlled by varying the firing angle of **SCRs.**



84. **U** **Compare MOSFET and IGBT.** **(AU/EEE - Dec 2009)**

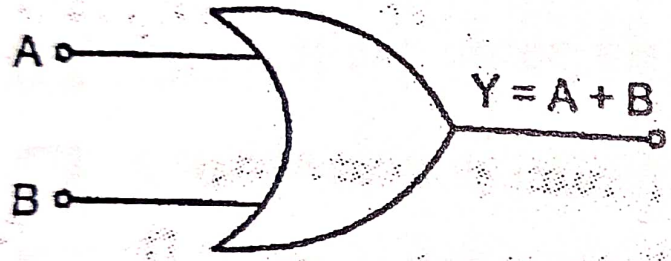
S.No.	MOSFET	IGBT
1.	Higher switching losses.	Lower switching losses.
2.	Low power applications.	High power applications.
3.	Less cost.	High cost.
4.	Higher gate drive requirements.	Lower gate drive requirements.
5.	More snubber circuit requirements.	Less snubber circuit requirements.

3.6.4 Comparison between FET and BJT

Field Effect Transistor (FET)	Bipolar Junction Transistor (BJT)
1. It is a unipolar device (i.e., Current in the device is either by electrons (or) holes.	It is a bipolar device (i.e.,) current in the device is carried by both electrons and holes.
2) It is a voltage controlled device (i.e.,) voltage at the gate terminal controls the amount of current through the device.	It is a current controlled device (i.e.,) the base current controls the amount of collector current.
3) Input resistance is very high and is of the order of mega ohms.	Input resistance is very low as compared to FET and is of the order of few ohms to kiloohms.
4) It has negative temperature co-efficient at high current levels. It means that current decreases as the temperature increases. This characteristic prevents the FET from thermal breakdown.	It has a positive temperature co-efficient at high current level. It means that collector current increases with the increase in temperature. This characteristic leads the BJT to thermal breakdown.
5) It does not suffer from minority carrier storage effects and therefore has higher switching speeds and cut off frequencies.	It suffers from minority carrier storage effects and therefore has lower switching speed and cut off frequencies than that of FET's.
6) It is less noisy than a BJT and vacuum tube.	More noisier than a FET.
7) Simpler to fabricate as a IC and occupies a less space on IC.	Difficult to fabricate as an integrated circuit (IC) and occupies more space than that of FET.
8) Cost is high.	Cost is low.

21. R Draw the symbol and truth table of OR gate.

a) Logic Symbol



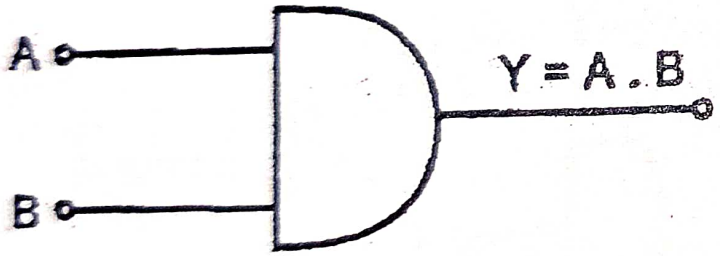
b) Truth Table

Inputs		*Output*
A	B	Y = A+ B
0	0	0
0	1	1
1	0	1
1	1	1

9. **R** **Give logic diagram and truth table of AND gate.**

(AU/Civil - May 2008, May 2005)

a) Logic Symbol



b) Truth Table

Inputs		Output
A	B	Y = A.B
0	0	0
0	1	0
1	0	0
1	1	1

19. **R** **What is meant by oscilloscope?**

The cathode ray oscilloscope (CRO) is probably the most versatile tool for the development of electronic circuits and systems.

The CRO allows the amplitude of electrical signals whether they are voltage, current or power, to be displayed as a function of time.

55. **R** **Mention some applications of DAS.**

1. Acrospace application
2. Biomedical field application
3. Telemetry industries
4. Industries

45. **R What are the applications of PMMC?**

1. These instruments can be used as voltmeter and ammeter with multiranges.
2. Self shielding magnets make the core magnet mechanism particularly useful in aircrafts and other aerospace applications where more number of instruments are mounted in one case to form a unified display. There by considerable amount of weight is reduced.

46. **R What are the applications of MI instrument?**

1. Used as multirange ammeters and voltmeters.
2. Used as inexpensive indicators such as charging and discharging current indicators in automobiles.
3. Extensively used in industries for measurement of AC voltage and current where errors of the order of 5% to 10% are acceptable.