Que-6 What is PIV? Why PIV of a S/c diode is a important parameter?

ANS→ Peak Inverse Voltage:→

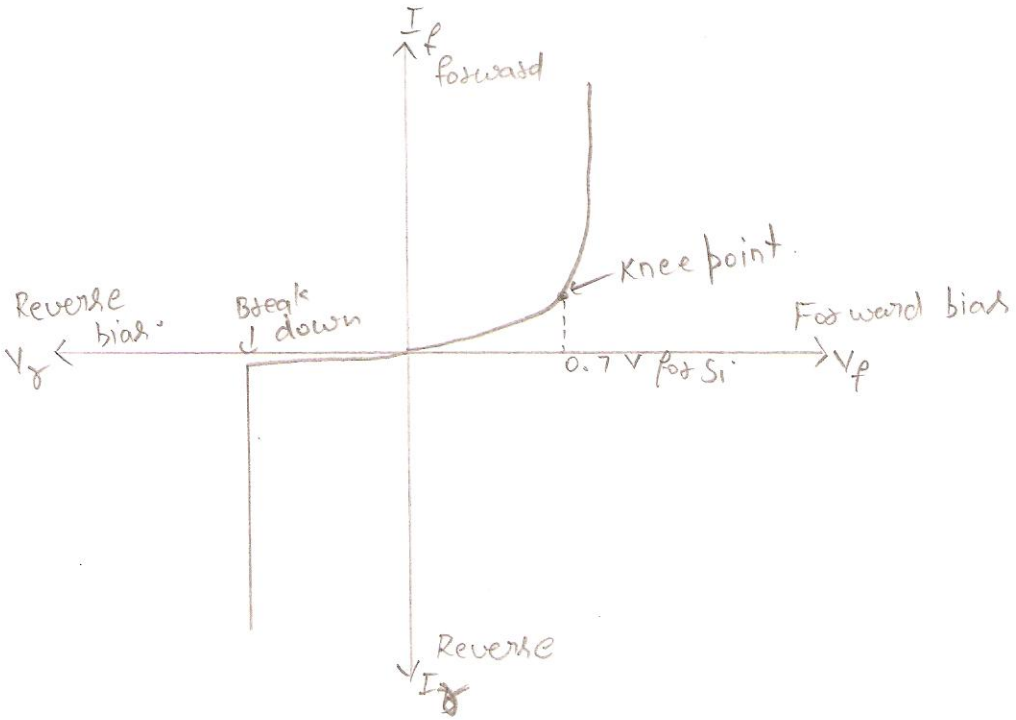
The maximum biased voltage that a diode can withstand without "breakdown" is called PIV.

The voltage output is V_m not V_{rms}. It will see a peak inverse voltage equal to peak value of the wave form.

A reverse biased diode prevent current from going through it due to the expanded depletion region. It actually a very small amount of current can and does go through a reverse biased diode, called the leakage current but it can be ignored for most of the purposes. The ability of a diode to withstand reverse biased voltage is limited as it is for insulator. If the applied reverse biased voltage become too great the diode will experience a condition known as break down which is usually destructive. A diode max. reverse biased voltage rating is known as peak inverse voltage.

PIV (↑) with (↑) in temperature.

It is very important parameter for power supply and power conversion design.



Que-7 What is reverse recovery time?

Ans→ The figure below shows that what happens when the diode biase is switch from forward to reverse. At the switching time current reverse and stays at a const. level for a period of time called the storage time (t_s). During this time the diode acts as a short circuit. Then the current decreases to the reverse leakge cussent valve. This latter time is called the transition time. The sum of storage and transition time is the reverse recovery time. It depends on the forward current and data sheets on the forward ~~cussent and data sheet~~ gives the reverse recovery time along with the test condition. The external voltage suppose to change suddenly, the outstanding feature is the reverse recovery. But after (t_s) seconds the cussent decays with some time const. (t_t) and reaches the small static reverse cussent of the junction.