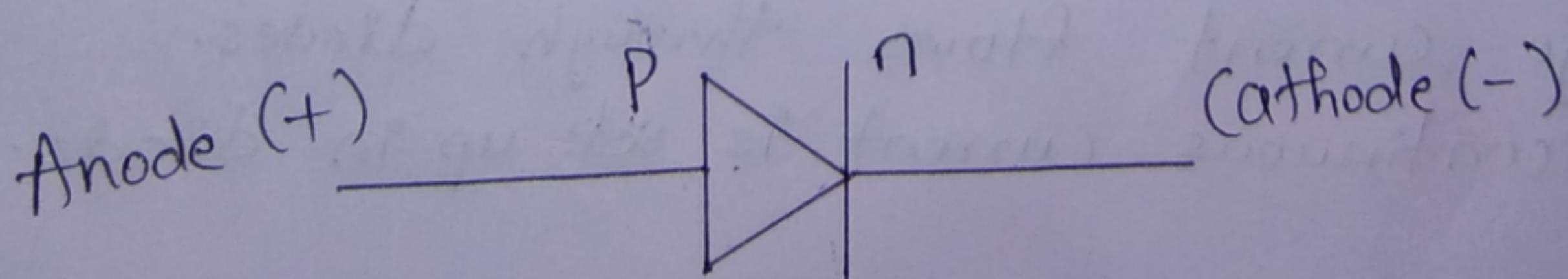


## Topic :- P-N JUNCTION DIODE

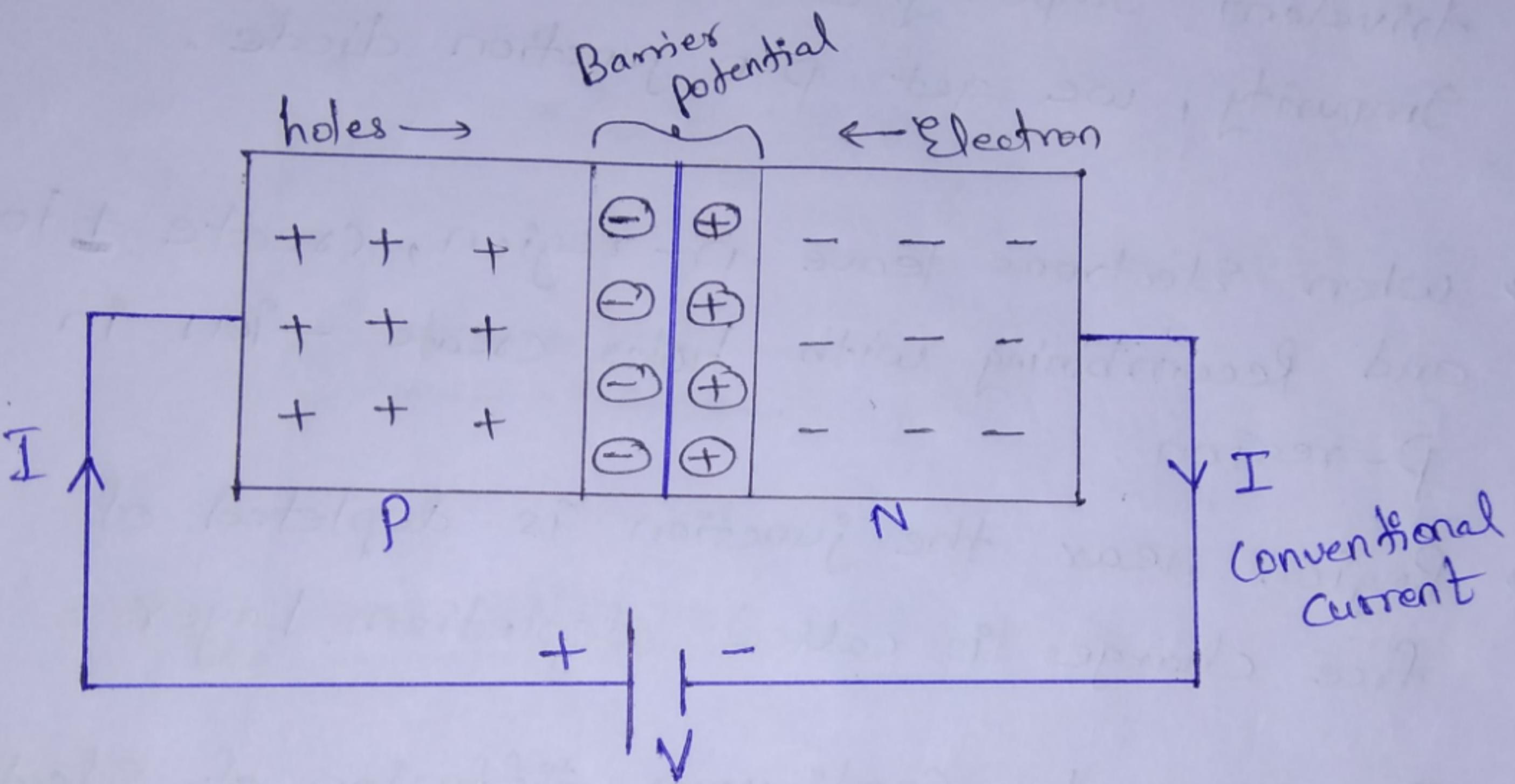
- When half Part of a Si Crystal is doped with trivalent Impurity and half with pentavalent Impurity, we get P-n junction diode.
- When electrons leave n-region, create +ion and Recombining with holes create -ion in p-region.
- Region near the junction is depleted of free charges is called depletion Layer.
- P.d prevents Continuous diffusion of electrons and holes across the junction hence called Barrier Potential [for Si diode = 0.7V]
- When no external source is connected to diode it is said to be Unbiased diode.



Symbol of P-N Junction diode.

→ When external source is connected to diode it is called Biased diode.

### I) Forward biased diode



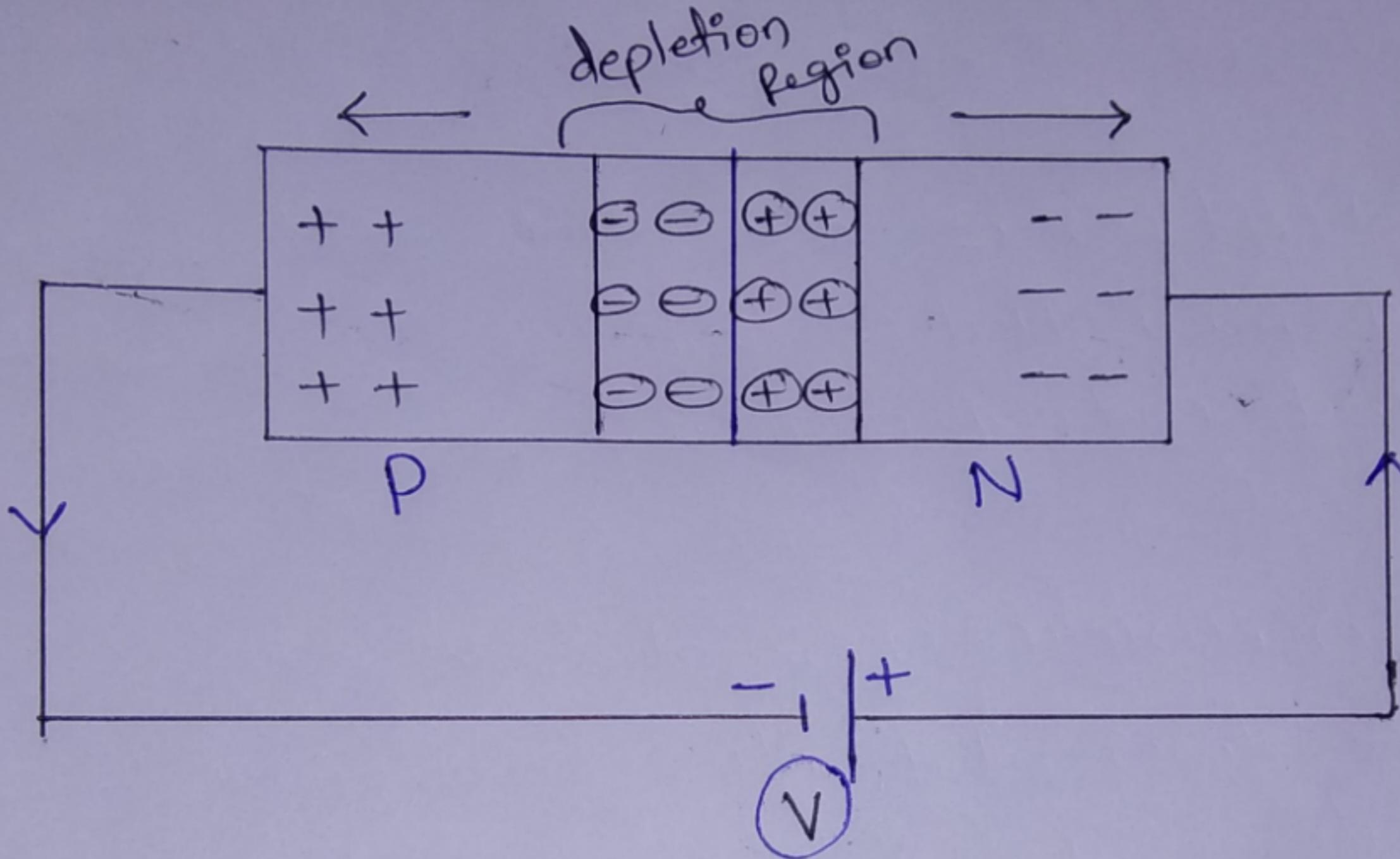
→ When Positive terminal of Source is connected to p-side and negative terminal to n-side the diode is said to be forward biased.

→ When forward bias becomes Equal to the barrier Potential Large no. of Electrons and holes cross the junction. They combine and Large current flows through diodes. A continuous current is set up in diode.

→ External P.d = Barrier Potential . difference

II

## Reverse biased Diode



→ When +ve terminal of External Source is connected to n-side and -ve terminal to p-side the diode is said to be Reverse biased.

→ Free electrons moves away from Junction & Increases width of depletion layer and barrier Potential.

There is no current through reverse biased diode.

→ When Reversed bias is increased at high value, Reverse current increases Suddenly.

This is called breakdown of diode and Corresponding voltage is breakdown Voltage ✓