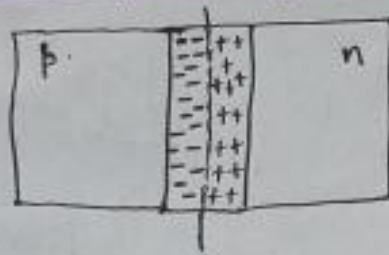


gets into charging mode until $q = CV_m$ ($V_m \rightarrow \text{max}^m$ voltage of the rectifier's ^{output}), then again with the fall of input voltage it starts to discharge and this cycle happens repeatedly. But since, the time constant ($\tau = RC$) is large compared to the input voltage's time period, so the decay of charge and corresponding voltage of the capacitor takes place very slowly and thus ~~the / the / excitation~~ ~~voltage~~ voltage remains nearly constant across the load R_L .

7. Why depletion region for a Zener diode is very thin?

Reply:



Since a Zener diode is fabricated by heavy doping on both sides of the $p-n$ majority charge carriers will ~~be~~ be very high on both sides. As a result, the diffusion current will also be high. ~~so~~ large no. of majority carriers