

**14.13** In the depletion region of a diode

- (a) there are no mobile charges
- (b) equal number of holes and electrons exist, making the region neutral.
- (c) recombination of holes and electrons has taken place.
- (d) immobile charged ions exist.

Ans: (a), (b), (c), (d)

Sol<sup>n</sup>:

During formation of p-n junction, electrons on the n-side and holes on the p-side migrate towards each other, forming a potential barrier across junction. Some holes and electrons cannot travel within the barrier.

So there are no roaming charges in depletion layer, but there are negative and positive ions.

When p-n junction developed, barrier layer was formed by ~~the~~ recombination of electrons and holes.