Donor and Acceptor Impurities Lecture-6

TDC PART -1

PAPER 1(GROUP B)

Chapter -4

BY:

DR. NAVIN KUMAR

(ASSISTANT PROFESSOR)

(GUEST FACULTY)

Donor Impurities,

- Donor impurities give its excess electrons present in its outermost shell to the other atom of the crystal structure.
- Donor impurity atom consists of a total of 5 electrons in its valence shell.
- Group V elements of the periodic table are considered donor impurity due to the presence of extra electron.

- Donor impurities are also known as n-type impurity.
- Elements like phosphorus, antimony, bismuth, arsenic etc. are donor impurities.

Acceptor impurity

- Acceptor impurity when added to a semiconductor then it accepts the charge from the neighbouring atom of the crystal structure.
- Acceptor impurity atom consists of 3 electrons in its valence shell.
- They are secondly known as a p-type impurity.

- Group III elements of the periodic table are considered as acceptor impurity due to the presence of less number of electrons in the valence shell.
- Boron, Gallium, Aluminium etc. are acceptor impurity atoms.