How to assign electron to atomic orbitals :

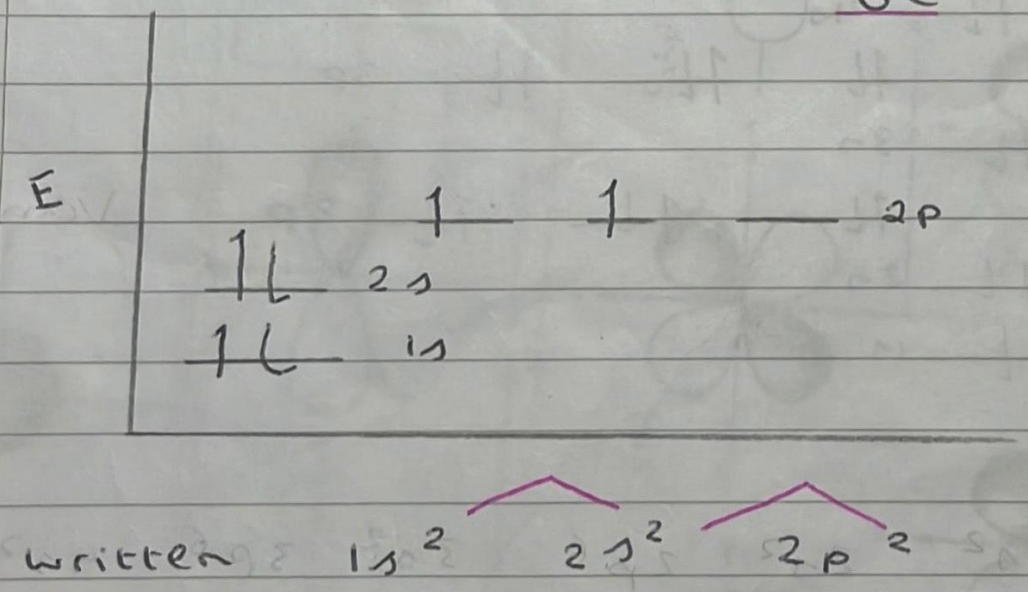
Aufbau principle : Electrons occupy the lowest energy orbital that is available

Hund's rule : Every orbital in a subshell is singly occupied before any orbital is doubly occupied (electrons are only paired when they have to be)

Pauli exclusion principle : Electrons cannot occupy the same orbital if they have the same spin (can't have two identical quantum numbers)

Carbon electronic structure

$6e^-$



written $1s^2 \quad 2s^2 \quad 2p^2$