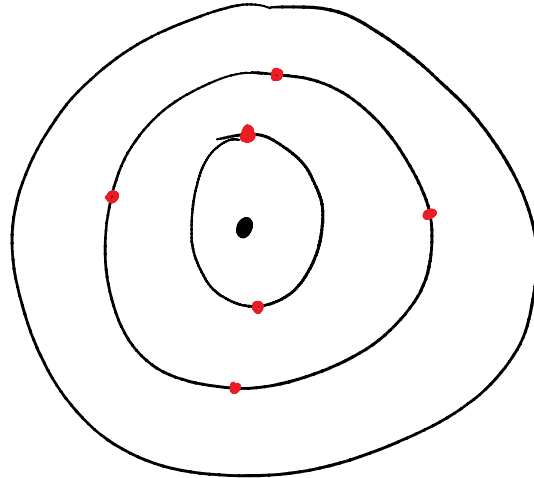


LECTURE 2 →

ELECTRONIC CONFIGURATION OF ATOMS

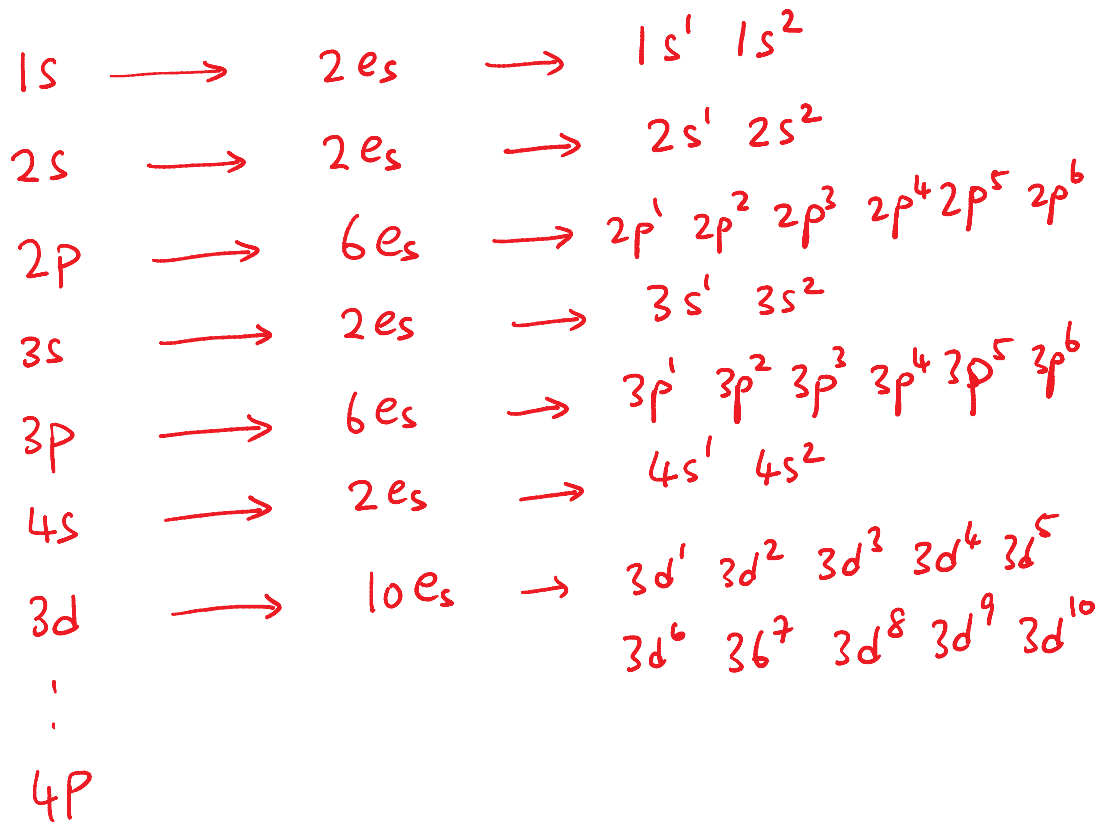
ELECTRON e → NEGATIVE CHARGE



e 's CAN ONLY HAVE
DISCRETE ENERGIES

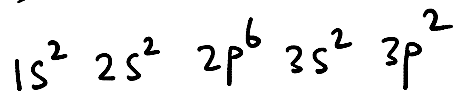
e 's CANNOT HAVE THE
SAME QUANTUM STATE

NOMENCLATURE → START FROM THE LOWEST ENERGY STATE



COLUMN 4 ELEMENT

Si → 14 ELECTRONS



4 VALENCE
ELECTRONS

PRACTICE
WRITING
FOR
DIFFERENT
ELEMENTS

* ELEMENTS IN THE SAME COLUMN HAVE
SIMILAR PROPERTIES

C → 6 ELECTRONS



4 VALENCE ELECTRONS
4 IN THE OUTER SHELL / STATE

COLUMN VIII ELEMENTS

HAVE COMPLETELY FILLED OUTER SHELLS

Ne → 10 ELECTRONS



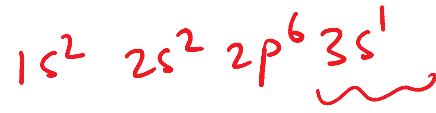
COMPLETELY FILLED

} INERT
GASES /
NOBEL
GASES

"DIFFICULT TO EXTRACT ELECTRONS FOR
CONDUCTION"

COLUMN 1 4 2

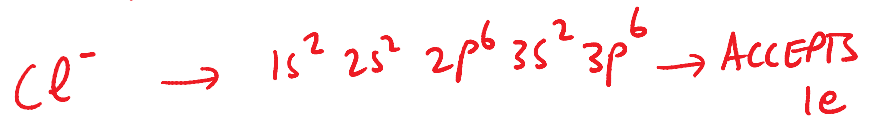
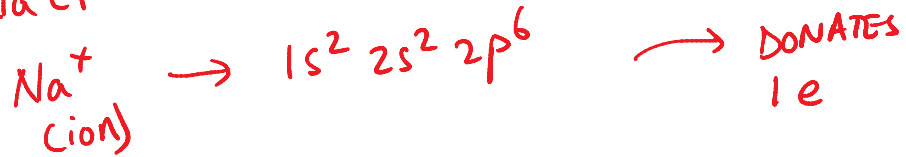
Na \Rightarrow 11 ELECTRONS



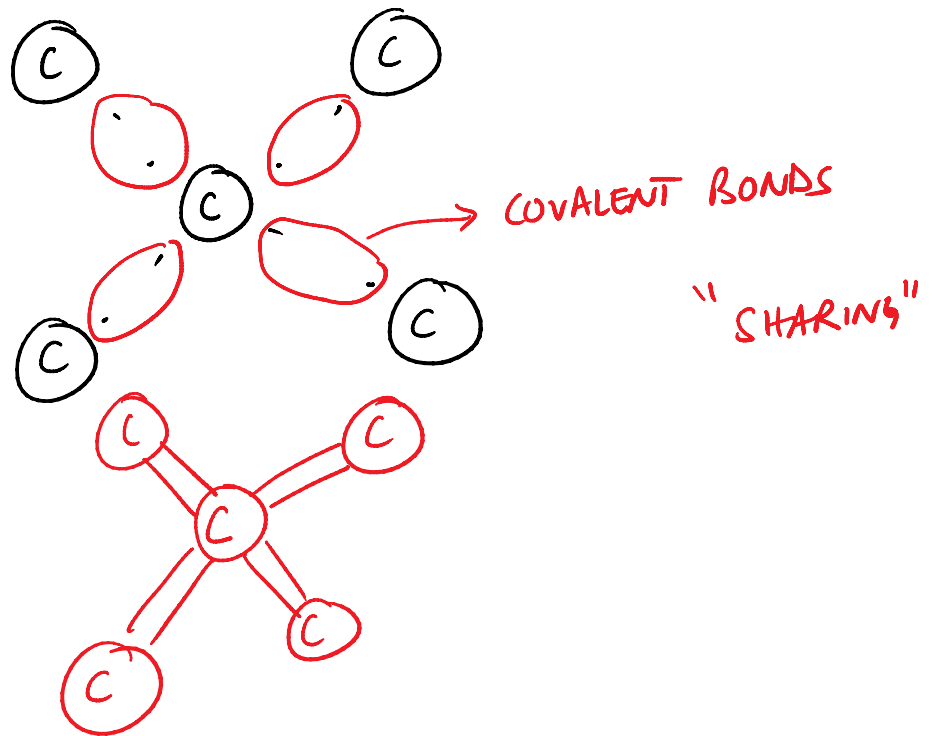
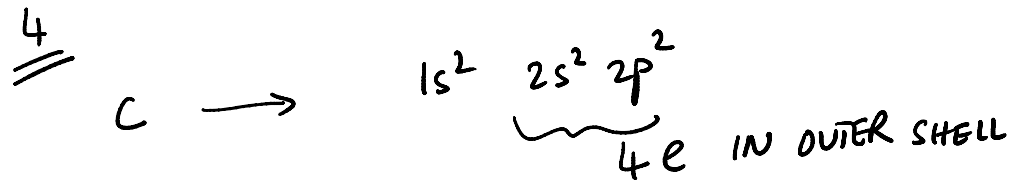
1 e IN THE OUTER SHELL

"VERY REACTIVE"
IONIC BONDS
ARE FORMED

NaCl



COLUMN 3, 4, 5



COVALENT BONDS

- 1) FORMED BY ELEMENTS IN COLUMN IV → C, Si, Ge
- 2) COLUMN III-V → COMBINED
GaAs, InP