ORGANIC CHEMISTRY 1 LECTURE GUIDE 2019

BY RHETT C. SMITH

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Organic Chemistry 1
Lecture Guide 2019

By Rhett C. Smith, Ph.D.

Companion Books from the Proton Guru:

Organic Chemistry 1 Reactions and Practice Problems 2019

by Rhett C. Smith

Organic Chemistry 1 Primer 2019,

by Rhett C. Smith, Andrew G. Tennyson, and Tania Houjeiry

ionic bonds: "Complete" transfer of electrons to give two ions

A

cation **anion**

covalent bonds: Equal or Unequal sharing of electrons without "complete" transfer

B

A bond can be represented by two dots or by a line.

A line represents two electrons!

The extent to which the electron is transferred depends upon how strongly each atom attracts the electrons within the bond. This attractive force is called the ELECTRONEGATIVITY of the atoms.

Electronegativity (EN):_____.

increases_____in the periodic table

Notes

The difference in electronegativity (EN) of two bonded atoms will tell you to what extent the electrons in the bond are transferred from one atom to the other.

H—H
EN = 2.1 2.1

Cl—Cl
EN = 3.0 3.0

$\Delta EN = 0$ equal sharing of electrons
= _____.

$\overset{\delta^+}{H}—\overset{\delta^-}{Cl}$
EN = 2.1 3.0

$\Delta EN = 0.9$ unequal sharing of electrons
= _____.

Na^+Cl^-
EN = 0.9 3.0

$\Delta EN = 2.1$ transfer of electrons
= _____.

general rule: $\Delta EN <$ ____, = "covalent"
$>$ ____, = "ionic"

Δ = uppercase "delta". In science and math, delta often represents a change or difference.

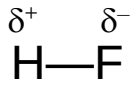
Notes

A

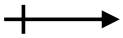
δ^+, δ^-

These are lowercase "delta" symbols. In science and math, delta often represents a change or a difference.

_____ these lowercase Greek symbols ('delta') tell us that the atom above which they are written bear a partial positive or negative charge.



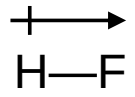
B



The dipole moment is represented by 'mu', the greek 'm'.

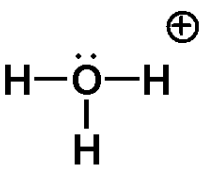
An arrow can also be used to represent the pull of electrons in the direction of the arrow. To emphasize the direction of electron movement, a 'plus' sign is drawn at the other side of the arrow. These arrows show us the

_____ of the molecule.



Notes

Formal charge =_____



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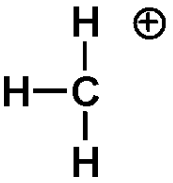

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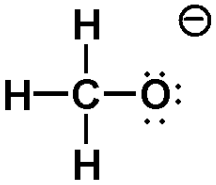

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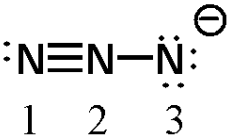
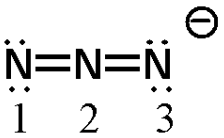


N#1:
N#2:
N#3:



N#1:
N#2:
N#3:

C:
O:

Notes