TD N6: Chemical bonds

Exercise 01

1-Represent using Lewis diagram in the following molecules and molecular ions:

HCN, $HClO_4$, NO_2^+, ClO^-
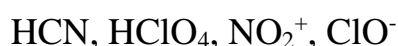
2-The HF molecule has a dipole moment $\mu = 1.83$ Debye and a bond length

d= 0.92 A°. Calculate the ionic percentage of this bond.

Exercise 2:

Calculate the ionic percentage of the O-H bond in the water molecule.

We give:

$l(O-H) = 0,98A°$

$HOH = 105°$

$\mu_{H_2O} = 1,84D$

Exercise 3:

1-Knowing the electronegativity of atoms H (2.2), F(4), Cl(3.1), K(0.8),

predict the main character (ionic, polar, covalent) of the bonds in the following molecules:

K-F; M-F; K-Cl; H-Cl and H-H.

2-Calculate the ionic percentage and the covalent percentage of bonds in these molecules.

-In the following table, the value in Å of their distance is given internuclear (d) and that in

Debye (D) of their dipole moment (μ).

	KF	KCl	HF	HCl	H_2
d(Å)	2,17	2,67	0,92	1,27	0,95
$\mu_{exp}(D)$	9,62	10,10	1,82	1,07	0