CH 231 Week 6 Review Sheet

What is the mass percent of Cl in dichloromethane? (CH_2Cl_2)

What is the mass percent of oxygen in glucose? ($C_6H_{12}O_6$)

Write the formula for:

Lead (II) Sulphate	Sodium Acetate
Trinitrogen tetrafluoride	Strontium Nitrate
Calcium Hydroxide	Nickel (IV) Chloride
Silver Chlorate	Vanadium (III) Sulfate

Name the following:

$Ca_3(PO_4)_2$	C_2H_6
$(NH_4)_3CO_3$	K_2SO_4
XeF_4	$Au(C_2H_3O_2)_2$

Rank the following elements by increasing radii:

Ca^{2+} P Cl^- K^+ Se As Li^- Mg^{2+} S

Draw the **most stable** Lewis Structure. Provide the total number of valence electrons, total bonding sites, total lone pairs, formal charges on all atoms, and the bond angles of the molecule:

I_3^-

SF_3^+

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James the Imposter in a new universe has discovered new species D, and protein X.

a) James synthesizes a new compound with the new species with naturally occurring phosphorus and finds that the mass percent of phosphorous and D are 54.980 and 16.550 percent by mass respectively. The molar mass of protein X is 1812.1 g/mol and the molar mass of D is 4.4729 g/mol. What is the empirical formula of PDX? Use sig figs in your calculation and use whole numbers in final formula.

b) A similar molecule with the same elements is found to have a molar mass of 38193.18 g/mol. What is the molecular formula of this molecule?

c) James goes one step further and wants to represent his new structure, named Jamesoniumm, as a Lewis structure. PDX can simply be written as PD_2X where:

X has an electronegativity of 2.1
D has an electronegativity of 1.8
P has an electronegativity of 3.3

In this universe,

X is in group 4
D is a halogen in period 3
P has 6 valence electrons

Draw a valid Lewis Structure for Jamesoniumm.