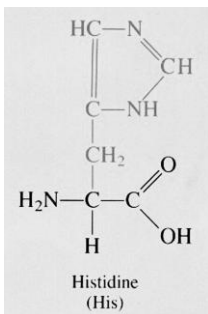


Honors Chemistry Practice Test: Chemical Bonding

1. Place the correct answer in the space at the left. (12 pts.)
- a.) _____ This person won 2 unshared Nobel Prizes for his work in chemical bonding and Peace.
 - b.) _____ Term for the ability of an atom in a chemical bond to attract electrons toward itself.
 - c.) _____ Which bond is most polar? (N-O, C-O, B-O)
 - d.) _____ An atom is most stable by achieving an electron configuration similar to the ___ elements.
 - e.) _____ Which atom is most electronegative? (Cs, C, O, F)
 - f.) _____ The oxygen atom becomes stable by gaining ___ (1,2,3,etc.) electrons to become similar to neon.
 - g.) _____ The calcium ion, Ca^{2+} , has an electron configuration similar to the noble gas ___ .
 - h.) _____ Which atom forms a $?^{-2}$ ion that is similar to Kr in electronic configuration?
 - i.) _____ In a bond between Na and S, the electrons are closer to the (Na / S) atom.
 - j.) _____ As more electrons are shared between 2 atoms the bond distance (increases / decreases).
 - k.) _____ Expanded octets place their lone electron pairs at the (axial / equatorial) region to minimize repulsion.
 - l.) _____ Shape of all 2 atom, diatomic molecules.

2. Indicate if the bond is (I)onic or (C)ovalent. (12 pts.)
- a.) _____ Δ EN of 0.21
 - b.) _____ molecule
 - c.) _____ Formula is always Empirical
 - d.) _____ Rb transfer 1 electron to Cl
 - e.) _____ gases, Ex. O_2 , N_2 , Cl_2
 - f.) _____ conducts electric current when dissolved
 - g.) _____ Δ EN of 2.27
 - h.) _____ electrons are shared
 - i.) _____ Ca—O bond
 - j.) _____ salt

3. The structural formula of the amino acid Histidine is shown below. What is the empirical and molecular formula of this compound. (2 pts.)



4. Disulfur dinitride (S_2N_2) exists as a ring of alternating sulfur and nitrogen atoms. S_2N_2 will polymerize (“flubberize”) to polythiazyl which acts as a metallic conductor of electricity along this polymer chain. Draw a Lewis structure for S_2N_2 . All atoms obey the octet rule. (3 pts.)

5. Complete the table for each compound by drawing a correct Lewis Structure and indicating the shape and bond angle. (36 pts.)

a.) PO_3^{-3} Shape: _____ Bond Angle: _____	b.) SO_3 Shape: _____ Bond Angle: _____	c.) ClF_3 Shape: _____ Bond Angle: _____
d.) NO_2^-	e.) N_3^-	f.) OCl_2

Shape: _____ Bond Angle: _____	Shape: _____ Bond Angle: _____	Shape: _____ Bond Angle: _____
g.) XeF ₄ Shape: _____ Bond Angle: _____	h.) SF ₄ Shape: _____ Bond Angle: _____	i.) Br ₃ ⁻ Shape: _____ Bond Angle: _____
j.) IF ₆ ⁺ Shape: _____ Bond Angle: _____	k.) BH ₃ Shape: _____ Bond Angle: _____	l.) SeF ₄ Shape: _____ Bond Angle: _____