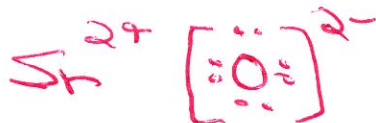


REVIEW QUESTIONS

Chapter 10

1. Write Lewis structure for each ionic compound shown below:

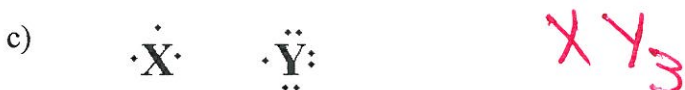
a) SrO



b) CaI₂

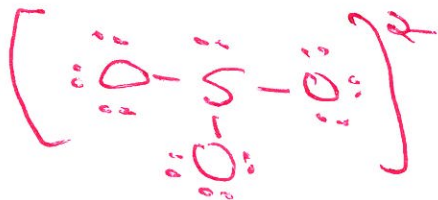


2. Write the formula for the ionic compound formed from the combination of the elements indicated by the following Lewis symbols. (Note: formulas should be written in terms of X and Y and not actual elements, since their identity is not conclusively known).



3. Draw Lewis structures and use VSEPR to predict the shape and bond angles and polarity for each of the following molecules or ions:

a) SO_3^{2-} $26e^-$



Shape: pyramidal

Bond angle: 109.5°

Polarity (Y/N): Yes

b) OCl_2 $20e^-$



Shape: Bent

Bond angle: 109.5°

Polarity (Y/N): Yes

c) COCl_2 $24e^-$

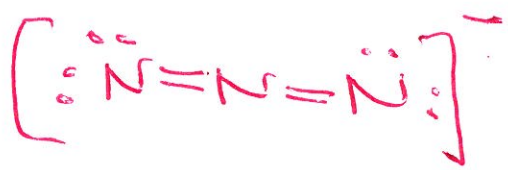


Shape: trigonal planar

Bond angle: 120°

Polarity (Y/N): Yes

d) N_3^- $16e^-$



Shape: linear

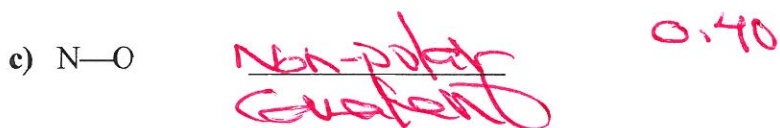
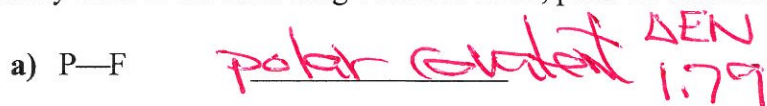
Bond angle: 180°

Polarity (Y/N): No

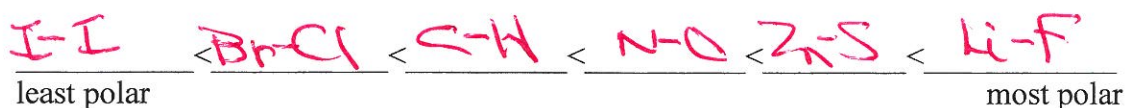
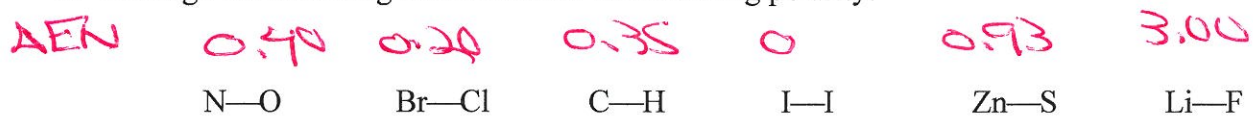
4. Determine what is wrong with each Lewis structure shown below, and write the correct structure.



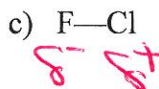
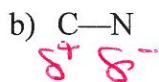
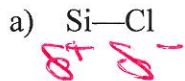
5. Classify each of the following bonds as ionic, polar covalent or non-polar covalent:



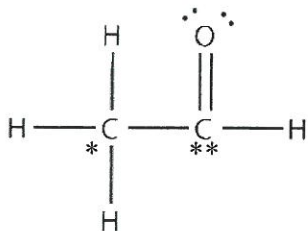
6. Arrange the following bonds in order of increasing polarity:



7. For each bond below, determine the direction of the dipole and indicate by labeling the atoms with δ^+ and δ^- charges.



8. Shown below is the Lewis structure for acetaldehyde molecule. Predict the shape and the bond angle of the molecule at each point indicated:



carbon (*) shape: tetrahedral
bond angle: 109.5°

Carbon (**) shape: trig. planar
Bond angle: 120°

9. Complete each of the following statements with a suitable word or phrase:

- a) Polarity of a bond is caused by difference in electronegativity
- b) Linear molecules with polar bonds are usually non-polar
- c) Molecules with 3 bonding pairs and 1 non-bonding pair of electrons around the central atom have a pyramidal shape.
- d) Bonds that have unequal sharing of electrons are classified as polar bonds.
- e) Molecules with 2 bonding pairs and 2 non-bonding pair of electrons around the central atom have a bent shape.