Quiz 8A

1. Why do water molecules, H2O, and carbon tetrachloride molecules, CCl4, have similar bond angles, but different names for their shapes (4 points)?

The central atom C has four bonded atoms while the central atom O has two bonded atoms and two nonbonding electron pairs.



1. For neutral molecules, which statements about covalent Lewis structures are true (4 points)?

|  |  |  |
| --- | --- | --- |
|  | Electrons of covalent compounds may be shared between atoms. | True |
|  | For a neutral molecule, the number of electrons in the Lewis structure is the sum of the valance electrons for the atoms. | True |
|  | Each atom of a Lewis structure must have eight electrons. | False |
|  | Hydrogen atoms are often the central atom of a Lewis structure. | False |

1. Draw the Lewis structures for the following compounds (12 points):
   1. Calcium sulfide, CaS 
   2. Ozone, O3  
   3. Carbon dioxide, CO2 
   4. Acetone, CH3COCH3 

Quiz 8B

1. For neutral molecules, which statements about covalent Lewis structures are true (4 points)?

|  |  |  |
| --- | --- | --- |
|  | Electrons of ionic compounds may be shared between atoms. | False |
|  | For a neutral molecule, the number of electrons in the Lewis structure is the sum of the valance electrons for the atoms. | True |
|  | Each atom of a Lewis structure must have eight electrons. | False |
|  | Hydrogen atoms are never the central atom of a Lewis structure. | True |

1. Why would carbon dioxide, CO2, be a nonpolar molecule when sulfur dioxide, SO2, is a polar molecule (4 points)?

The central atom C doesn’t have lone pair electrons while S has.



1. Draw the Lewis structures for the following compounds (12 points):
   1. Magnesium fluoride, MgF2 
   2. Ammonia, NH3  
   3. Selenium dioxide, SeO2 
   4. Acetic Acid, CH3COOH 