Chemistry 115 Name key

Dr. Cary Willard

Quiz 6a (20 points) October 31, 2012

1. (3 points) How many valence electrons are there in an atom of carbon? 4

Draw the lewis electron dot structure for an atom of carbon.



1. (3 points) How does an ionic bond differ from a covalent bond?

An ionic bond is formed when an electron is transferred from one atom to another and then the anion and a cation are held together by an electrostatic attraction. A covalent bond is formed when two atoms come together to form a shared electron bond or a covalent bond.

1. (5 points) Draw a Lewis electron dot structure for the molecule below. Identify the bonding pairs and the lone pairs in NBr3.



1. (6 points) Determine the orbital and molecular geometries for each of the following molecules.

|  |  |  |
| --- | --- | --- |
| molecule | orbital geometry | molecular geometry |
|  | tetrahedral | linear |
|  | trigonal planar | trigonal planar |

1. (3 points) Explain what is meant by a polar bond? How can you predict whether or not a bond will be polar?

A polar bond has a positive and a negative end. Bonds with elements that have different electronegativities are polar.

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Quiz 6b (20 points) October 31, 2012

1. (3 points) How many valence electrons are there in an atom of sulfur? 6

Draw the lewis electron dot structure for an atom of sulfur.



1. (3 points) How does an ionic bond differ from a covalent bond?

An ionic bond is formed when an electron is transferred from one atom to another and then the anion and a cation are held together by an electrostatic attraction. A covalent bond is formed when two atoms come together to form a shared electron bond or a covalent bond.

1. (5 points) Draw a Lewis electron dot structure for the molecule below. Identify the bonding pairs and the lone pairs in SF2.



1. (6 points) Determine the orbital and molecular geometries for each of the following molecules.

|  |  |  |
| --- | --- | --- |
| molecule | orbital geometry | molecular geometry |
|  | linear | linear |
|  | tetrahedral | trigonal pyramadal |

1. (3 points) Explain what is meant by a polar bond? How can you predict whether or not a bond will be polar?

A polar bond has a positive and a negative end. Bonds with elements that have different electronegativities are polar.

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Quiz 6c (20 points) October 31, 2012

1. (3 points) How many valence electrons are there in an atom of chlorine? 7

Draw the lewis electron dot structure for an atom of chlorine.



1. (3 points) How does an ionic bond differ from a covalent bond?

An ionic bond is formed when an electron is transferred from one atom to another and then the anion and a cation are held together by an electrostatic attraction. A covalent bond is formed when two atoms come together to form a shared electron bond or a covalent bond.

1. (5 points) Draw a Lewis electron dot structure for the molecule below. Identify the bonding pairs and the lone pairs in CH3OH. (Skeleton structure drawn.)

 

1. (6 points) Determine the orbital and molecular geometries for each of the following molecules.

|  |  |  |
| --- | --- | --- |
| molecule | orbital geometry | molecular geometry |
|  | trigonal planar | bent |
|  | tetrahedral | tetrahedral |

1. (3 points) Explain what is meant by a polar bond? How can you predict whether or not a bond will be polar?

A polar bond has a positive and a negative end. Bonds with elements that have different electronegativities are polar.

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Quiz 6d (20 points) October 31, 2012

1. (3 points) How many valence electrons are there in an atom of boron? 3

Draw the lewis electron dot structure for an atom of boron.



1. (3 points) How does an ionic bond differ from a covalent bond?

An ionic bond is formed when an electron is transferred from one atom to another and then the anion and a cation are held together by an electrostatic attraction. A covalent bond is formed when two atoms come together to form a shared electron bond or a covalent bond.

1. (5 points) Draw a Lewis electron dot structure for the molecule below. Identify the bonding pairs and the lone pairs in N2H4. (Skeleton structure drawn.)

 

1. (6 points) Determine the orbital and molecular geometries for each of the following molecules.

|  |  |  |
| --- | --- | --- |
| molecule | orbital geometry | molecular geometry |
|  | linear | linear |
|  | tetrahedral  (but trigonal planar as drawn – missing electrons on P) | trigonal pyramidal (but trigonal planar as drawn) |

1. (3 points) Explain what is meant by a polar bond? How can you predict whether or not a bond will be polar?

A polar bond has a positive and a negative end. Bonds with elements that have different electronegativities are polar.