

## Bonding Practice Quiz

Name: Key

A) Answer each of the following questions in as much detail as possible.

- 1) Why do atoms bond together? To become stable (Octet Rule)
- 2) Describe an ionic bond in detail.  
An attraction between (+) & (-) ions. (Metal loses e<sup>-</sup>; nonmetal gains)
- 3) Describe a covalent bond in detail.  
Nonmetals share e<sup>-</sup> to meet octet rule
- 4) Describe a metallic bond in detail.  
Positive <sup>metal</sup> nuclei in a "sea of electrons"

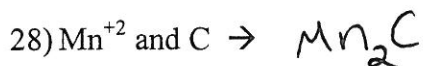
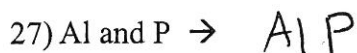
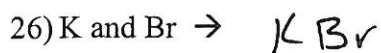
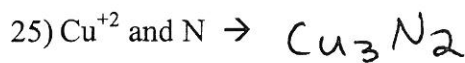
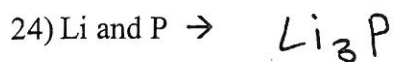
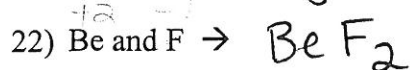
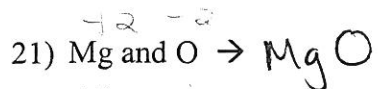
For each of the following, label whether it is ionic, covalent, or metallic bond. Note that some will have more than one type of bond.

- C 5) Involves sharing electrons
- I 6) Smallest unit is a formula unit
- C 7) Poor conductors
- C 8) Made of all nonmetals
- I/M 9) Forms a crystal shape
- I 10) Smallest unit is actually a ratio
- M 11) Is held together by a "sea of electrons"
- I 12) Conducts electricity if dissolved or melted
- I 13) Involves a transfer of electrons
- I 14) Brittle
- C 15) Low melting points
- C 16) Smallest unit is a molecule
- M 17) Malleable
- I 18) Metal and a nonmetal
- I 19) Involves positive and negative ions
- M 20) Good conductors

ab initio



For each of the following, use the "criss-cross" method to show what compound would form between the two elements. (example: Al and Br  $\rightarrow$  AlBr<sub>3</sub>)



For each of the following, draw the Lewis dot diagram, then label the shape and the bond angles.

Compound	Lewis dot diagram	Shape	Bond angle
29) NH <sub>3</sub>	$\begin{array}{c} \cdot\cdot \\ \text{H} - \text{N} - \text{H} \\ \cdot\cdot \\ \text{H} \end{array}$	trig. pyr.	$< 109.5^\circ$
30) N <sub>2</sub>	$:\text{N} \equiv \text{N}:$	linear	$180^\circ$
31) SiO <sub>2</sub>	$:\ddot{\text{O}} = \text{Si} = \ddot{\text{O}}:$	linear	$180^\circ$
32) CBr <sub>4</sub>	$\begin{array}{c} \cdot\cdot \\ \text{Br} \\ \cdot\cdot \\ \cdot\cdot \\ \text{Br} - \text{C} - \text{Br} \\ \cdot\cdot \\ \text{Br} \\ \cdot\cdot \end{array}$	tetrahed.	$109.5^\circ$
33) BF <sub>3</sub>	$\begin{array}{c} \cdot\cdot \\ \text{F} - \text{B} - \text{F} \\ \cdot\cdot \\ \text{F} \\ \cdot\cdot \end{array}$	trig. planar	$120^\circ$
34) H <sub>2</sub> Se	$\begin{array}{c} \cdot\cdot \\ \text{H} - \text{Se} - \text{H} \\ \cdot\cdot \end{array}$	Bent	$< 109.5^\circ$
35) HCN	$\text{H} - \text{C} \equiv \text{N}:$	linear	$180^\circ$