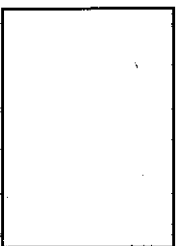


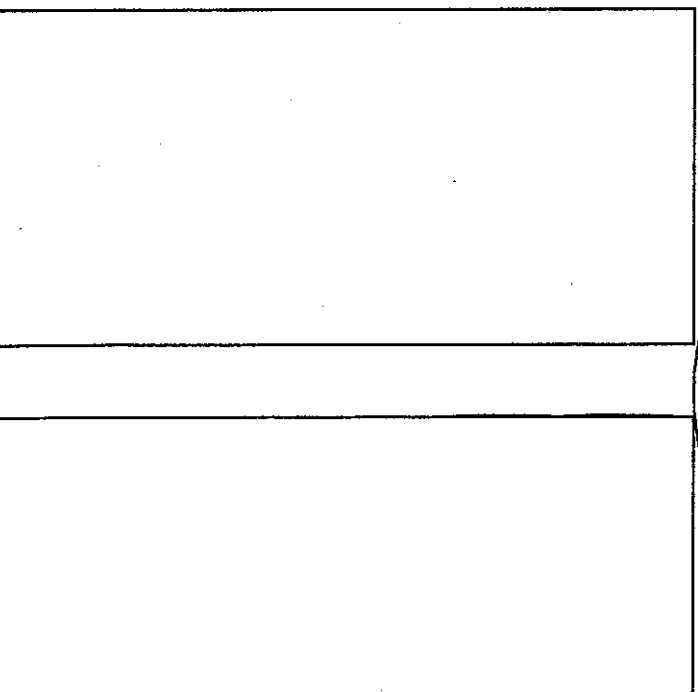
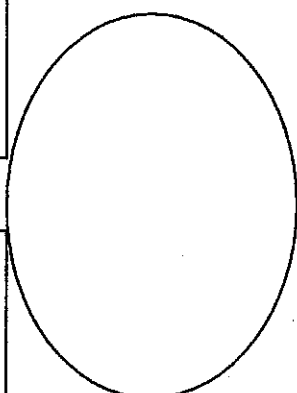
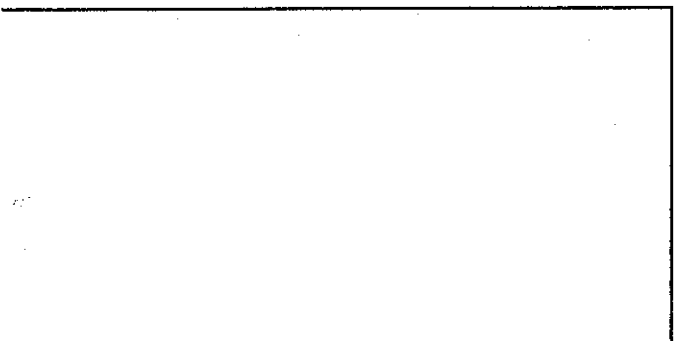
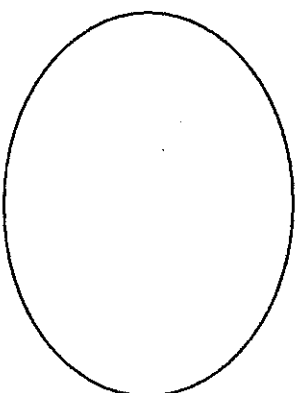
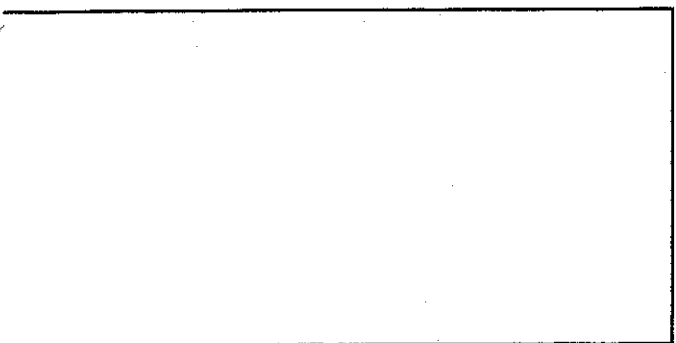
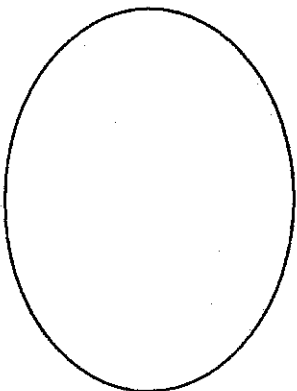
Types of Chemical Bonds Graphic Organizer

Background:

Electron negativity:



Note on Noble Gases:

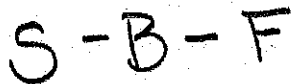


Name: _____ Class: _____ Date: _____

Lewis Structures

Draw the Lewis structures for the following compounds:

* 1) BSF Exception



2) HBr

3) $\text{C}_2\text{H}_5\text{OH}$ (ethanol OH is a polyatomic ion)

4) N_2F_4 (N-N is your central atom)

5) SF_6

6) PBr_3

7) N_2H_2 (N-N is your central atom)

8) CH_3OH (OH is a polyatomic ion)

9) NO_2^{-1}

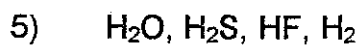
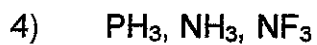
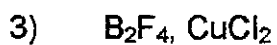
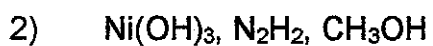
Resonance Structures Practice

Draw all of the possible resonance structures for the following ions or molecules:



Ranking Molecules by Increasing Polarity

In each of the following problems draw the Lewis structure and draw the dipole moment:



Name: _____

Polarity Practice Worksheet

For each of the following pairs of compounds, determine which is most polar based on their Lewis structures.

- 1) methyl chloride (CHCl_3) or methyl bromide (CHBr_3)

- 2) water or hydrogen sulfide (H_2S)

- 3) hydrochloric acid (HCl) or hydroiodic acid (HI)

- 4) HBr or HCl

- 5) methanol (CH_3OH) or diethyl ether [$(\text{CH}_3)_2\text{O}$]

- 7) How many electrons are shared between two atoms in a double covalent bond?
- | | | | |
|---|---|---|---|
| A | 8 | C | 4 |
| B | 6 | D | 2 |
- 8) How many unshared pairs of electrons are there on phosphorous in PCl_3 ?
- | | | | |
|---|---|---|---------------|
| A | 1 | C | 3 |
| B | 6 | D | none of these |
- 9) Which of the following elements occurs naturally as a diatomic molecule with three covalent bonds?
- | | | | |
|---|----------|---|----------|
| A | oxygen | C | fluorine |
| B | hydrogen | D | nitrogen |
- 10) When a bond consist of bonding electrons that are shared equally in a single covalent bond, the bond is called a(n)...
- | | |
|---|-------------------------|
| A | ionic covalent bond |
| B | polar covalent bond |
| C | one-sided covalent bond |
| D | non-polar covalent bond |
- 11) Which of the following pairs of elements can be joined by a covalent bond?
- | | | | |
|---|-----------|---|----------|
| A | Li and Br | C | Mg and C |
| B | N and C | D | He and O |
- 12) In which of the following compounds/ions is there an exception to the octet rule (Draw all 4 and select all that apply)?
- | | | | |
|---|---------------|---|--------------------|
| A | SF_6 | C | XeCl_2 |
| B | PH_3 | D | BH_4^{-1} |

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13) What causes dipole-moment?

- A unequal sharing of electron pairs
- B bonding of a covalently-bonded hydrogen to an lone electron pair
- C the random motion of electrons
- D none of these

14.) In which type of bond are electrons shared between atoms?

- A. Ionic
- B. Covalent
- C. Metallic

15) Which type of bond creates a crystalline structure?

- A. Ionic
- B. Covalent
- C. Metallic

16) Which type of bond usually forms between two nonmetals?

- A. Ionic
- B. Covalent
- C. Metallic

17) In which type of bond are one or more electrons transferred from one atom to another?

- A. Ionic
- B. Covalent
- C. Metallic

18.) Which of the following is NOT a characteristic of ionic substances?

- A. Conduct electricity in solution form.
- B. Have high melting points.
- C. Usually dissolve in water.
- D. Are usually gases at room temperature.

19) Which of the following is NOT a characteristic of metallic substances?

- A. Are lustrous, malleable, and ductile.
- B. Conduct electricity.
- C. Have low melting points.
- D. Are usually solids at room temperature.

20) Which of the following is NOT a characteristic of covalent substances?

- A. Have low melting points.
- B. Sometimes dissolve in water.
- C. Usually form small, individual molecules.
- D. Conduct electricity

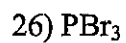
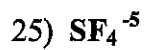
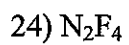
21) Why do atoms form chemical bonds?

- A. To increase their potential energy.
- B. To become more stable.
- C. To gain more electrons.
- D. To obtain a higher electronegativity.

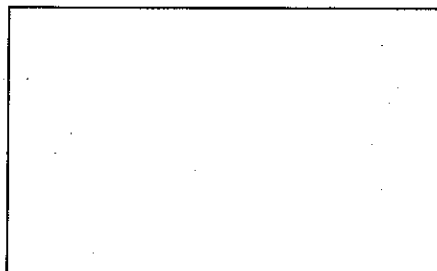
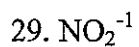
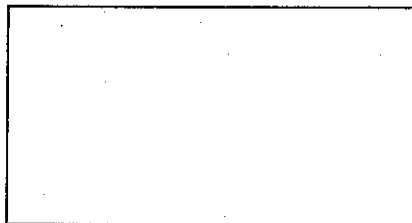
Part II: Draw the Lewis structures for the following compounds. Please be neat and clear in your drawings (1pt each)

22) SeO_2

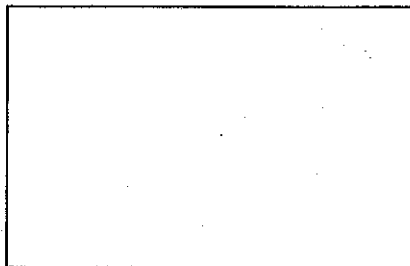
23) HBr



Part III: Draw the Lewis structure for the following molecules and then calculate the formal charge for all the atoms. Please make sure the formal charges are identified clearly. Please be neat and clear in your drawings.(3 pts each)



30. C_2H_4



31. Complete

the table

	LiO	BC	Br₂
Difference in Electronegativity			
Type of Bond			
Picture of electron cloud and dipole moment if applicable			

32. Draw all resonance structures for NCO^- (hint there are three)

