

1. For each on the main group families, write down a representative Lewis dot valence electron structure.

| Group I | Group II | Group III | Group IV | Group V | Group VI | Group VII | Group VIII |
|---------|----------|-----------|----------|---------|----------|-----------|------------|
| Na | Be | Al | Si | N | O | Br | Kr |

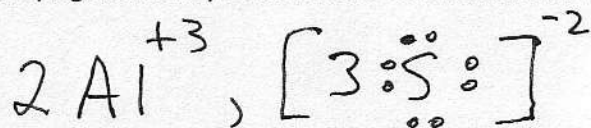
2. Electronegativity. From memory, fill in the table below with an approximate electronegativity for each period 2 main group element. If you can't do this by the first test, FROM MEMORY, you are in trouble.

| | Group I | Group II | Group III | Group IV | Group V | Group VI | Group VII | Group VIII |
|---------|---------|----------|-----------|----------|---------|----------|-----------|------------|
| element | Li | Be | B | C | N | O | F | Ne |
| EN | ~1.0 | ~1.5 | ~2.0 | ~2.5 | ~3.0 | ~3.5 | ~4.0 | ∅ |

3. Write down all the nine possible combinations of cations (represented by A) and anions (represented by B) that can be combined to satisfy the octet rule in forming the common formulas for salts. Give a representative example of each form.

| $+1 -1$ | $+2 -2$ | $+3 -3$ | | | | | | |
|---------|---------|---------|----------|---------|----------|---------|-----------|-----------|
| AB | AB | AB | AB_2 | A_2B | AB_3 | A_3B | A_2B_3 | A_3B_2 |
| NaCl | MgO | AlN | $CaCl_2$ | Na_2S | $AlCl_3$ | Na_3N | Al_2S_3 | Ca_3N_2 |

4. Write down the annoying and clunky formal Lewis dot structure for Al_2S_3 .

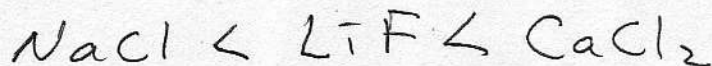


5. Using charge density arguments to rank bond strengths for the following series of salts:

KCl, KF, KI



LiF, NaCl, $CaCl_2$,



MgO, Al_2O_3 , CaF_2

