16) Write the formula for any covalent compound (you make it up) that fits the following description. (2 pts each)

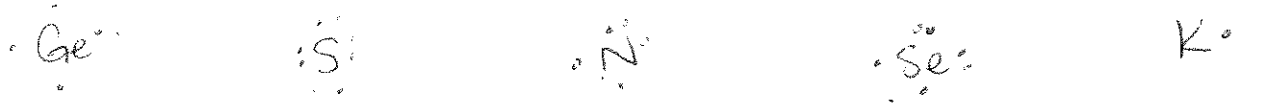
a) A compound that has a tetrahedral shape and is polar. CH_3Cl

b) A compound that has a pyramidal shape and is non polar. ~~PAt_3~~ (need to look up electrons, #s)

c) A compound that has a linear shape and is polar. COS

18) Draw the lewis dot structures for the following particles. (1 pt each)

a) $_{32}Ge$_____ b) $_{16}S^{2-}$_____ c) $_{7}N$_____ d) $_{34}Se$_____ e) $_{19}K$_____



1) Using your knowledge of molecular structure, identify the main intermolecular force in the following compounds. You may find it useful to draw Lewis structures to find your answer.

a) PF_3 dipole-dipole

b) H_2CO dipole-dipole

c) HF H-bonding

2) Explain how dipole-dipole forces cause molecules to be attracted to one another.

+ & - ends of molecules attract to one another

3) Rank the following compounds from lowest to highest boiling point: calcium carbonate, methane, methanol (CH_4O), dimethyl ether (CH_3OCH_3).

methane (nonpolar) dispersion only < dimethyl ether (polar) dipole-dipole < methanol (H-bonding) < calcium carbonate (ionic)

4) Explain why nonpolar molecules usually have much lower surface tension than polar ones.

only can do dispersion IMF so weaker IMFs.

What is the strongest intermolecular force present for each of the following molecules?

1) hydrogen (H_2) dispersion

2) carbon monoxide (CO) dipole-dipole

3) silicon tetrafluoride (SiF_4) dispersion

4) nitrogen tribromide (NBr_3) dipole-dipole

5) water (H_2O) H-bonding

6) acetone (CH_2O) dipole-dipole

7) methane (CH_4) dispersion

8) benzene (C_6H_6) dispersion

9) ammonia (NH_3) H-bonding

10) methanol (CH_3OH) H-bonding