

Intermolecular Forces Worksheet #1
(2012 Version)

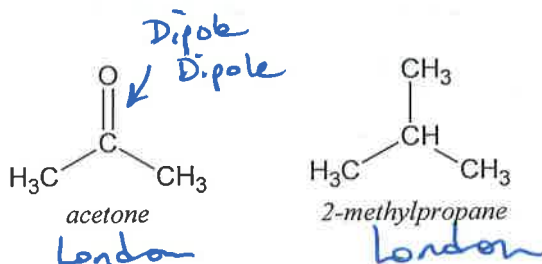
1. List all of the intermolecular forces that are present for each of the following:

Br_2	H_2S	$\begin{array}{c} \text{H} \\ \\ \text{H}-\text{C}-\text{O}-\text{H} \\ \\ \text{H} \end{array}$
<i>London</i>	<i>London Dipole Dipole</i>	<i>London H-bonding Dipole-Dipole</i>

2. Which gas would be expected to have a greater boiling point: Xe or Ar? Explain your reasoning.

Xe is a larger atom than Ar so it is polarizable and has stronger London forces

3. Acetone boils at 56°C . Would you expect 2-methylpropane to boil at a higher or lower temperature than acetone? Explain your reasoning.

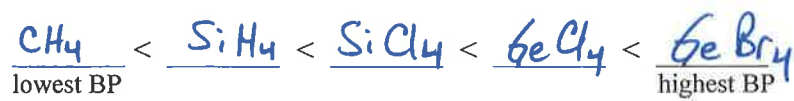


2-methylpropane will boil @ a lower temp because it does not have the stronger dipole-dipole forces.

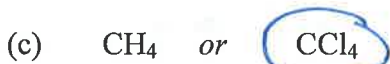
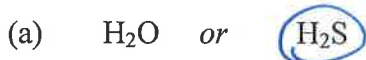
4. Which of the following atoms would you expect to be most polarizable: O, S, Se, or Te? Explain.

Te is the largest atom of the series so it is the most polarizable.

5. Predict the order of boiling points for the following compounds: GeCl_4 , CH_4 , SiCl_4 , SiH_4 , and GeBr_4

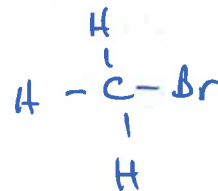
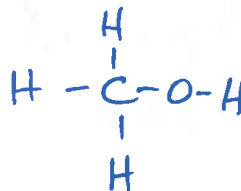
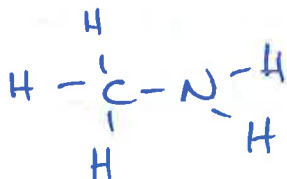
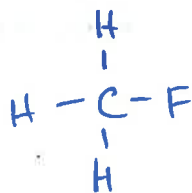


6. Which member of the following pairs has the stronger London dispersion forces?



Strongest London forces are associated w/ larger formula wts

7. Which of the following molecules is capable of showing hydrogen bonding? Explain your reasoning.



These two have H bonded directly to N and O

8. Which compound would be expected to have the higher boiling point? Explain your reasoning.



H-bonding



or



Larger formula wt



or



dipole-dipole