Mr. Bracken
AP Chemistry

Name _____
Period ____

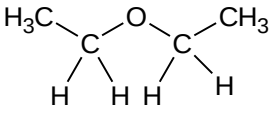
Intermolecular Forces Worksheet #2

1. Hydrazine (N_2H_4), hydrogen peroxide (HOOH), and water (H_2O) all have exceptionally high surface tensions compared to other substances of similar molecular weights.

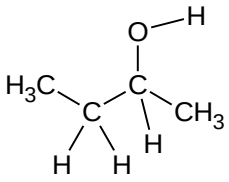
   (a) Write the Lewis structures for each of the three compounds listed above.

   (b) Provide an explanation to account for high surface tensions.

2. Consider the two molecules shown below.



Ethyl ether



Butyl alcohol

   (a) Which compound is more soluble in water? Explain.

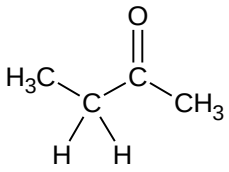
   (b) Which compound has a greater equilibrium vapor pressure at 25^{o}C? Explain.

3. Which has a greater boiling point, ethane (C_2H_6) or hexane (C_6H_{14})? Explain your reasoning.

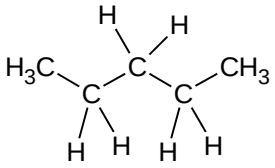
4. Ammonia (NH_3) and methane (CH_4) have similar formula weights, but ammonia has a much higher normal boiling point (-33°C) than CH_4 (-164°C). What explains such different boiling points?

5. Why does MgO melt at a much higher temperature (2,852°C) than NaF (993°C)?

6. Consider the two molecules shown below.



Butanone



Pentane

(a) Which molecule would be expected to have the greater boiling point? Explain.

(b) Which molecule would be expected to be more soluble in water? Explain.