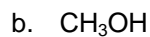


AP Chemistry: *Intermolecular Forces*

For each problem below, write the equation and show your work. Always use units and box in your final answer.

1. Describe the intermolecular forces that must be overcome to convert each of the following from a liquid to a gas:



- 2a. What is meant by the term polarizability?

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

- c. Put the following molecules in order of increasing polarizability: GeCl_4 , CH_4 , SiCl_4 , SiH_4 , GeBr_4

- d. Predict the order of boiling points of the substances in part (c).

3. Which member of the following pairs has the larger London dispersion forces?

a. H_2O or H_2S

b. N_2 or O_2

c. CH_4 or CCl_4

4. Which of the following molecules can form hydrogen bonds with other molecules of the same kind?

CH_3F , CH_3NH_2 , CH_3OH , CH_3Br

5. Identify the types of intermolecular forces that are present in each of the following substances and select the substance in each pair that has the higher boiling point.

a. C_6H_{14} or C_8H_{18}

b. C_3H_8 or CH_3OCH_3

c. CH_3OH or CH_3SH

d. NH_2NH_2 or CH_3CH_3