Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_

Chem R Pd. \_\_\_\_ IMF Practice

1.

* Draw two NH3 molecules in the box.
* Assign partial + and partial – charges

to all atoms in each molecule.

1. What type of covalent bonding is present between N and H? (Hint: BEND)
2. Is the molecule polar or nonpolar? (Hint: SNAP)
3. What type of IMF attracts these two molecules?
4. Use a dashed line ( - - - ) to show the attractive force between the NH3 molecules in your drawing. What is the relative strength of this force?
5. Considering your answer to question 4, why is ammonia a gas at STP?

**Question 2**

* Draw two HI molecules in the box.
* Assign partial + and partial – charges

to all atoms in each molecule.

1. What type of covalent bonding is present between H and I? (Hint: BEND)
2. Is the molecule polar or nonpolar? (Hint: SNAP)
3. What type of IMF attracts these two molecules?
4. Use a dashed line ( - - - ) to show the attractive force between the HI molecules in your drawing. What is the relative strength of this force?

5. Why are HI molecules not attracted to each other by hydrogen bonding?

**Question 3**

* Draw two N2 molecules in the box.

1. What type of chemical bond holds the 2 nitrogen atoms together? (Hint: BEND)
2. Why doesn’t N2 have partial charges?
3. What type of IMF attracts these two molecules?
4. Use a dashed line ( - - - ) to show the attractive force between the N2 molecules in your drawing. What is the relative strength of this force?
5. Why is nitrogen a gas at room temperature?
6. Bromine is also diatomic and held together by weak forces. Why is it a liquid at STP?

**Question 4**

* Draw both CH4 molecules in the box.
* Assign partial + and partial – charges

to all atoms in each molecule.

1. What type of chemical bond hold the C and H together? (Hint: BEND)
2. Is CH4 a polar or nonpolar molecule? (Hint: SNAP)
3. What type of IMF attracts these two molecules?
4. Use a dashed line ( - - - ) to show the attractive force between the CH4 molecules in your drawing. What is the relative strength of this force?
5. What changes can you make to liquefy methane gas? Why?