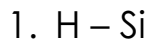


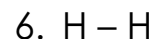
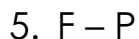
Name _____

Honors Chapter 8.4 and 9 Practice Sheet

Indicate the δ^+ and δ^- side of each bond.



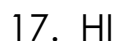
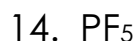
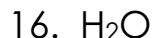
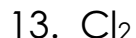
Indicate the dipole moment of each bond.



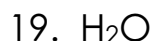
Are the following molecules nonpolar, polar, or ionic?



Would the following molecules experience London dispersion forces, dipole attractions, or hydrogen bonding?



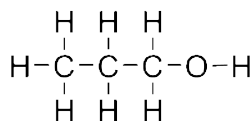
Name or write the formula for the following molecules.



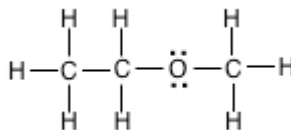
24. What kind of intermolecular attractive force is shown in each of the following cases?

25. The following molecules have the same molecular formula (C_3H_8O), yet they have different normal boiling points, as shown. Explain the difference in boiling points.

Propanol ($97.2^\circ C$)



ethyl methyl ether ($10.8^\circ C$)



Use the following chart to answer questions 26 – 27.

26. Based on the data, which substance has the weakest intermolecular forces?

- a. F_2 b. Cl_2 c. Br_2 d. I_2

27. Which of the following data best provides evidence that I_2 is a solid under standard conditions?

- a. Low vapor pressure
b. High melting point
c. High boiling point
d. High molar mass

28. All of the following molecules contains polar bonds. Predict whether each of the following molecules is polar or nonpolar.

- a. IF b. CS_2 c. SO_3 d. PCl_3 e. SF_6

29. Which of the following statements correctly accounts for the increase in boiling points of the elements going down group 18?

- a. The London (dispersion) forces increase.
b. At the same pressure, atoms with a large radius are closer together.
c. Atoms of higher mass move more slowly on average than atoms of lower mass.
d. The kinetic energy of the atoms decreases with increasing mass.

30. Which of the following bonds has the greatest polarity?

- a. $H-N$ b. $H-O$ c. $F-O$ d. $F-I$

31. Which of the following most directly explains the difference in melting points between BeO (2,507°C) and NaCl (801°C)?
- NaCl is an ionic compound and BeO is a covalent (molecular) compound.
 - There is less distance between the sodium and chloride ions in NaCl compared to the distance between beryllium and oxygen ions in BeO.
 - The sodium ion is larger and less positively charged than the beryllium ion; the chloride ion is larger and less negative charged than the oxygen ion.
 - Beryllium and oxygen have lower atomic numbers than sodium and chlorine, respectively.

Use the following data to answer questions 32 – 33.

32. Which of the following most accurately explains the difference in boiling points among the compounds?
- A greater number of hydrogen bonds increases the boiling point.
 - Dispersion forces are stronger in molecules of higher molar mass.
 - A water solubility increases, boiling point decreases.
 - The greater the polarity of the compound, the lower the boiling point.
33. Which of the following most accurately explains the difference in water solubility among the compounds?
- The compounds of lower mass can form more hydrogen bonds with water.
 - Molecules of high molar mass are generally less water soluble.
 - Dispersion forces are stronger in molecules of higher molar mass.
 - The high density of the higher molar mass compounds causes them to separate from water when mixed.

34. Refer to the diagram below. Intermolecular attraction that occur between ethanol and water include

- a. Hydrogen bonding only.
- b. Ionic forces only.
- c. Dispersion forces only.
- d. Hydrogen bonding and dispersion forces.

35. Diamond is an extremely hard substance. This quality is best explained by the fact that a diamond crystal is

- a. An ionic compound with a large lattice energy.
- b. Made completely of carbon, a very hard atom.
- c. Formed only under extremely high heat and pressure.
- d. One giant molecule in which each atom forms strong bonds with each of its neighbors.