**Quiz 9A**

# Directions: Answer each of the following questions. Be sure to use complete sentences where appropriate. For full credit be sure to show all of your work. Where appropriate answers should be boxed for clarity, written to the correct number of significant figures, and, include the proper units.

1. Nitrogen gas reacts with powdered aluminum to produce aluminum nitride. The nitrogen gas is measured at 892 torr and 95 °C (14 points).
   1. What is the pressure of the nitrogen gas in atm?
   2. What is the temperature of the nitrogen gas in Kelvin?
   3. Write the balanced combination reaction.

N2 (g) + 2 Al (s) → 2 AlN (s)

* 1. How many moles of nitrogen gas are required to completely react with 18.5 g of aluminum?
  2. How many liters of nitrogen gas are required to completely react with 18.5 g of aluminum?

1. What kind of intermolecular forces are present in the following substances (6 points)?
   1. HCl \_\_\_\_\_\_\_\_London-dispersion forces, dipole forces
   2. He \_\_\_\_\_\_\_\_London-dispersion forces
   3. NH3 \_\_\_\_\_\_\_\_London-dispersion forces, dipole forces, hydrogen bonding

**Quiz 9B**

# Directions: Answer each of the following questions. Be sure to use complete sentences where appropriate. For full credit be sure to show all of your work. Where appropriate answers should be boxed for clarity, written to the correct number of significant figures, and, include the proper units.

1. What kind of intermolecular forces are present in the following substances (6 points)?
   1. Kr \_\_\_\_\_\_\_\_London-dispersion forces
   2. CO \_\_\_\_\_\_\_\_London-dispersion forces, dipole forces
   3. HF \_\_\_\_\_\_\_\_London-dispersion forces, dipole forces, hydrogen bonding
2. Silver metal and oxygen gas react to produce silver oxide. The oxygen gas is measured at 541 mm Hg and 84 °C (14 points).
   1. What is the pressure of the oxygen gas in atm?
   2. What is the temperature of the oxygen gas in Kelvin?
   3. Write the balanced combination reaction.

O2 (g) + 4 Ag (s) → 2 Ag2O (s)

* 1. How many moles of oxygen gas are required to completely react with 125.4 g of silver?
  2. How many liters of oxygen gas are required to completely react with 125.4 g of silver?