CHM 1020 FALL 2011 EXAM #2

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

1. Which set of coefficients below balance the following equation:

\_\_\_ C3H8 + \_\_\_ O2 → \_\_\_ CO2 + \_\_\_ H2O

A) 1,5,3,4

B) 5,1,3,4

C) 2,10,6,8

D) 2,2,2,1

1. What is the molarity of 2.50 L of solution that contains 1.34 mol of NaCl?

A) 1.87 M

B) 1.34 M

C) 0.546 M

D) 31.3 M

1. What is the mass of 3.22 mol of NH3?

A) 45.1 g

B) 17.0 g

C) 3.22 g

D) 54.7 g

1. Hydrogen peroxide decomposes into water and oxygen gas: 2 H2O2(l) → 2 H2O(l) + O2(g).

If 5.94 g of hydrogen peroxide decomposes, how many grams of oxygen gas are formed?

A) 1.40 g

B) 5.59 g

C) 2.80 g

D) 0.471 g

1. Coefficients can be changed in order to balance an equation.
2. True
3. False

1. A solution contains one solute dissolved in a solvent.
2. True
3. False

1. Which of the following is not a balanced chemical equation?

A) 2 NaHCO3 → Na2CO3 + H2O + CO2

B) 2 H2O2 → 2 H2O + O2

C) C2H5OH + 3 O2 → 2 CO2 + 3 H2O

D) Be2C + 2 H2O → 2 Be(OH)2 + CH4

1. What is the mass, in grams, of 15.15 moles of KI?

A) 7.85 g

B) 1.80 x 103 g

C) 12.7 g

D) 0.127 g

1. How many moles is represented by 10.0 g of H2O?

A) 1.8 mol

B) 0.556 mol

C) 180. mol

D) 0.588 mol

1. If 30.0 moles of nitrogen is allowed to react with hydrogen according to the following equation, how many moles of ammonia (NH3) is formed?

N2 + 3H2 → 2 NH3

A) 60.0 mol

B) 15.0 mol

C) 20.0 mol

D 30.0 mol

1. What is the pressure of 3.54 g of NO gas in a 2.73 L container at 45.0 °C?

A) 33.9 atm

B) 1.13 atm

C) 0.160 atm

D) 0.885 atm

1. Which state of matter has a defined volume but no defined shape?
2. liquid
3. gas
4. solid
5. What is the density of HBr at STP?

A) 0.276 g/L

B) 3.61 g/L

C) 1.00 g/L

D) 80.9 g/L

1. If the volume of a sealed sample of gas is reduced at constant temperature, the pressure will increase.
2. True
3. False

1. How many carbon atoms are there in 12.0g of Carbon?
2. 1
3. 12
4. 144
5. 6.02 x 1023

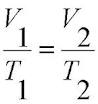
1. What is the strongest intermolecular force that exists between molecules of hydrogen fluoride (HF)?
2. Hydrogen bonds
3. Ionic bonds
4. Dipole-dipole forces
5. Dispersion forces

1. Small molecules that exhibit hydrogen bonding, such as NH3, are insoluble in water.
2. True
3. False

1. Doubling the pressure on a gas at constant temperature will cause the volume of the gas to \_\_\_\_\_.
2. Remain unchanged.
3. Triple
4. Double
5. Halve

1. Which gas law can be used to predict the effect of taking a party balloon from a warm room to the out of doors on a cold day?
2. Charles' Law
3. Boyle's Law
4. Avogadro's Law
5. In a two cycle engine, oil is mixed with the gasoline. This mixture contains a \_\_\_\_\_ solute and \_\_\_\_\_ solvent.
6. nonpolar/nonpolar
7. polar/nonpolar
8. polar/polar
9. nonpolar/polar

CHARLES LAW  *Na= 6.02 x 1023mol-1*(avogadro’s #)

[](http://www.google.com/imgres?imgurl=http://schoolworkhelper.net/wp-content/uploads/2010/11/charles-law.jpg&imgrefurl=http://schoolworkhelper.net/2010/11/charles-law-volume-temperature-lab-answers/&usg=__KoSGVAWy1od3cI-x5RzM-l8VFqA=&h=198&w=187&sz=9&hl=en&start=13&zoom=1&tbnid=fIS5xYNRpUziXM:&tbnh=104&tbnw=98&ei=JGKxTqjhIdPqggf_wrXVAQ&prev=/search?q=charles+law&um=1&hl=en&safe=active&sa=N&tbm=isch&um=1&itbs=1)IDEAL GAS LAW

*pV* = *nRT*

R = 0.08206 L.atm

K.mol

BOYLES LAW

*p_1 V_1 = p_2 V_2. \,*