Chemistry 65

# FINAL EXAM REVIEW

1. Calculate the mass of solute needed to prepare each 350 mL of 1.8 M NaOH solution.

2. What volume (mL) of a 4.0 M solution of HCl contains 12 g of solute?

3. A gas sample with a volume of 730 mL and pressure of 830 mmHg is at a temperature of 30.0°C. How many moles of gas does this sample contain?

4. How many grams of nitrogen gas has the same volume as 120 g of Ar gas at the same temperature and pressure?

5. If 75 mL of water is added to 120 mL of a 0.15 M NaOH solution, what will be the molarity of the final solution?

6. What volume (L) of 0.05 M HCl solution can be prepared by diluting 250 mL of 10 M HCl?

7. 350 mL of a 1.5 M NaCl solution is heated until the volume is reduced to 250 mL. What is the molarity of this solution?

8. How many grams of C_8H_{18} are needed to produce 250 L of CO_2 gas at a temperature of 0 °C and a pressure of 752 mmHg?

$$2\ C_8H_{18}\,(g)\ +25\ O_2\ (g)\ \rightarrow\ 16\ CO_2\,(g)+18\ H_2O\,(g)$$
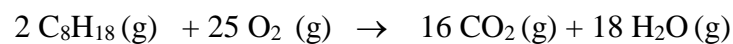
9. Calculate the molar mass of a gas if 2.68 g of the gas occupies 2.00 L at 10.0°C and 764 mmHg.

10. A mixture of 11 g of CO_2. And 8.0 g of O_2 and an undetermined amount of H_2 occupies a volume of 22.4 L at 760 mmHg and 0°C. What mass of H_2 is present in this mixture?

11. What is the volume occupied by 35.4 g of nitrogen gas at 35 °C and 735 mmHg?

12. Write the symbols of the ions and formulas for their ionic compounds using the electron configurations give in the table below:

Electron Configuration		Symbol of Ions		
Metal	Non-metal	Cation	Anion	Formula of Compound
$1s^22s^22p^63s^2$	$1s^22s^22p^3$			
$1s^22s^22p^63s^23p^64s^2$	$1s^22s^22p^63s^23p^3$			
$1s^22s^22p^63s^23p^1$	$1s^22s^22p^5$			

ANSWERS:

1) 25 g

2) 82 mL

3) 0.032 mol

4) 84 g

5) 0.092 M

6) 50 L

7) 2.1 M

8) 160 g

9) 31.0 g/mol

10) 1.0 g

11) 33.0 L