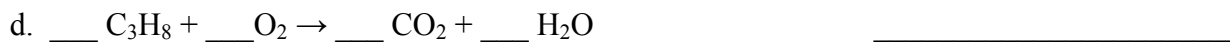
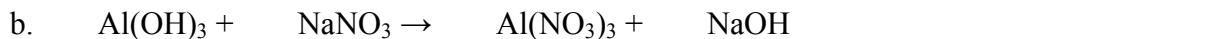


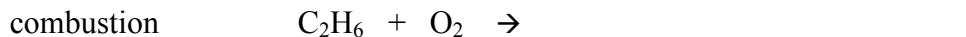
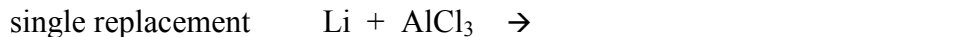
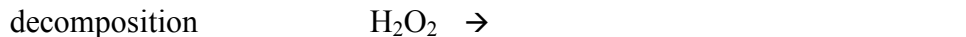
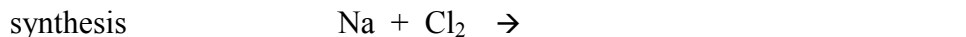
Chemistry 1 Exam Review

Part 3 – Chapters 10-13

32. Balance the equations. Then identify the type of reaction. Choose from: synthesis, decomposition, single replacement, double replacement, and combustion (pg 284-291).



33. Predict the *product(s)* for each reaction. You do not need to balance the equations. (pg 284-291)



34. Find the mass of each of the following. (pg 313-316)

1.35 moles of NaCl

2.5 moles O₂

Find the number of moles in each of the following.

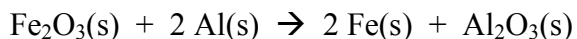
28.9g H₃PO₄

15.5g H₂O

35. The chemical analysis of aspirin indicates that the molecule is 60.00% carbon, 4.44% hydrogen, and 35.56% oxygen. Determine the empirical formula for aspirin.

36. A substance is found to have the empirical formula, C₂H₃O₂, and molecular mass of 118.1 g/mol. What is the molecular formula of the substance?

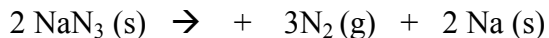
37. How many moles of aluminum oxide, Al₂O₃, are produced when 1.45 moles of aluminum, Al, react with excess iron (III) oxide, Fe₂O₃, according to the following equation?



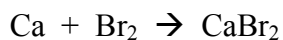
38. How many grams of carbon dioxide gas are produced when 0.49 moles of calcium carbonate react with excess hydrochloric acid, HCl, according to the following equation?



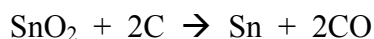
39. How many grams of nitrogen, N_2 , are produced when 100.0 grams of sodium azide, NaN_3 , is decomposed according to the following reaction?



40. What is the *limiting reactant* when 45.0 g of Ca is reacted with 45.0 g of Br_2 in the reaction below?



41. How many grams of carbon monoxide would be produced in the reaction below if 3.00 g of carbon react with 3.00 g of SnO_2 ?



42. What is the percent by mass of sodium, Na, in sodium bicarbonate, $NaHCO_3$?

43. Upon heating, calcium carbonate decomposes to produce calcium oxide and carbon dioxide, according to the following equation.



Determine the theoretical yield of CO_2 if 235.0 g of $CaCO_3$ is heated.

What is the percent yield of CO_2 if 97.5 g CO_2 is collected?

44. The kinetic molecular theory of gases explains the behavior of gases at the molecular level.
List the concepts that make up the kinetic molecular theory of gases. (Pg 385-386, 419-420)

45. Explain each type of intermolecular force using words and diagrams.

Dispersion forces

Dipole-Dipole forces

Hydrogen Bonds

46. Which of the following substances contain hydrogen bonds between molecules?

C_6H_6 NaF H_2 NH_3 NO H_2O HCl CH_2F_2 HF

47. Which phase changes absorb energy? release energy? (pg 404-409)

48. Explain what happens to the energy, order, and spacing of particles when a liquid changes to a gas.