CHEM305 MIDTERM #2 NAME:

Instructions: Complete this midterm per the directions given on Canvas. Do not share this document or any associated work with anyone else. You are responsible for your own answers and could be held responsible if it looks like you have strayed beyond the course resources that are intended for you to use during this exam. Submission of material from an unauthorized resource will result in a zero on the entire exam. Please refer to the Canvas page for additional info and contact me if you have any questions or concerns.

1.) Fill in all the blank boxes with the appropriate chemical formula or properly spelled name. **Only names and formulas derived from the *systematic* (IUPAC) format (the way taught in this course) will be given credit**. **Latin names will not be given credit**. **You are not allowed to look up answers on the internet**. The response I am expecting could be very different than what you might find even on reputable internet sites, so use only the knowledge you were taught in this course. Some of the compounds might not naturally exist. Assume that all acids are under aqueous conditions even though they will not have the (aq) listed. **(2 points each)**

One final reminder: The only informational resources you may use are your textbook and those items provided on the course Canvas site.

Chemical Formula	Chemical Name
	gold (IV) sulfate
	tin (IV) oxide
	iron (III) nitride
	ammonium nitrite
	lead (II) iodide
	calcium acetate
	cobalt (II) selenide
	sulfur trioxide
	sulfur hexafluoride
	nitrous acid

Chemical Formula	Chemical Name
N_2O_5	
PBr_6	
S_2O_5	
SBr	
$Au(CN)_4$	
P_4O_5	
$Mn(Cr_2O_7)_2$	
$Hg_2(NO_3)_2$	
Ag_2SO_4	
HIO_3	

2.) Write the following sentence as a **balanced** chemical equation, including proper symbols and states:

When heated, mercury (II) oxide decomposes to form liquid mercury and oxygen gas. (5 points)

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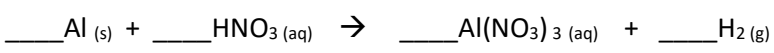
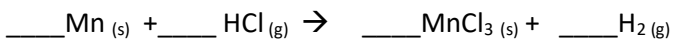
3. Using the following reaction, how many liters of hydrogen gas will be produced if 0.980 grams of aluminum metal react with excess nitric acid? Be sure to carefully balance the equation first. (8 points)



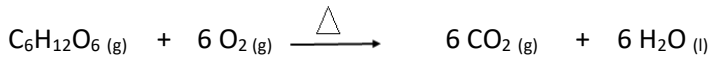
____$Al_{(s)}$ + ____$HNO_{3\,(aq)}$ → ____$Al(NO_3)_{3\,(aq)}$ + ____$H_{2\,(g)}$

4. Determine how many grams of manganese (III) chloride will be produced if 2.02 grams of manganese metal completely react with excess hydrogen chloride gas. Be sure to carefully balance the equation first. (8 points)



____$Mn_{(s)}$ +____ $HCl_{(g)}$ → ____$MnCl_{3\,(s)}$ + ____$H_{2\,(g)}$

5. This is the balanced equation for how our bodies metabolizes glucose for the energy you need to live:



$C_6H_{12}O_{6\,(g)}$ + 6 $O_{2\,(g)}$ $\xrightarrow{\triangle}$ 6 $CO_{2\,(g)}$ + 6 $H_2O_{(l)}$

Students performed this process under laboratory conditions, where they started with 125 grams of glucose and produced 97.8 liters of carbon dioxide gas (at STP). What was the percent yield of carbon dioxide gas the students observed? *To help you save time, the molar mass of glucose is 180.2 g/mol* (14 points).