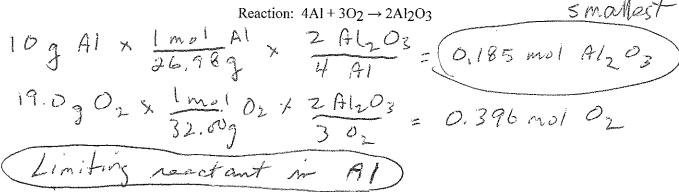
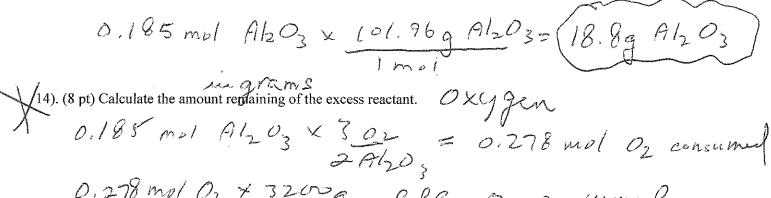
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CHEM 10, Fall 2009			Name	KEY		
Exam #4 (Chp 8, 11)	-	100 points		/ V · · · · · · · · · · · · · · · · · ·	Page 1 of 3	
NERUse Scantron to answer q	uestions 1 – 11 <i>(</i> 3	B pt each). Sele	ect only one answer	<u>.</u> 24	Page 1 of 3	
m. o				0	[] -	•
Chp 8 1) In a stoichiometry problem,	before determini	ng conversion	factors, it is necess	sary to make s	ure the equation is	
properly balanced.	TRUG	8)	FALSE			
2) The limiting reactant is the p	product that is con	J	**-	reaction.		,
3) The percent yield can never (A) TRUE B) FA		00%.				
4) How many moles of chlorin Given the reaction: 2Na + Cl ₂	-	to make 0.6 m	oles of sodium chlo	oride?	4	
_	(B) 0.3	C) 1.2	D) 3.6			
5) Which of the following state A) The limiting reactant is of B) The theoretical yield is the C) The actual yield is the an D) The percent yield = A The E) All of the above are true	completely consume the amount of product of the count of product of the count of th	med in a chem duct that can b actually produ	e made based on th		miting reagent.	,
Chp 11 6) As your increase temperature A) TRUE B) FA	-	e average energ	gy of the gas partic	les.		,
7) Gases and liquids are compr (A) TRUE B) FA	·	s are not.				
8) As we climb a mountain to a A) TRUE B) FA	-	we experience	a pressure decrease	5,		
9) What is the equivalent press A) 688 B) 840		in units of mm D) 13.3	Hg?			
10) A balloon filled with 0.500 3.25 atm. What is the volume of A) 1.63 L B) 01	of the balloon at the	nis depth?		depth that pro	oduces a pressure of	
11) What is the initial temperate determined to be 255.0 °C? A 480 °C B) -41	- ,			1.10 L and the	e final temperature was	•••
33 pt $\frac{1}{T_1}$	21.104	277	T, 2	480	6-2/3 207°C	

Chp 8

12). (13 pt) Using the following balanced chemical equation, determine which reactant is limiting if you start with 10.0 grams of Al and 19.0 grams of O₂. Molar masses are Al=26.98 g, O₂=32.00 g, Al₂O₃=101.96 g



13). (4 pt) Calculate the theoretical yield (grams) of aluminum oxide?



0,278 mol 02 x 3200g = 8,88 g 02 consumed.

19.03 0_2 - 8.883 0_2 = 10.1 0_2 remain

15) (11 pt) In the following reaction was done with 8.5 g NH3 and only 4.5 g of NO was obtained. Calculate the

percent yield for this reaction. Reaction: $4 \text{ NH}_3 + 5 \text{ O}_2 \rightarrow 4 \text{ NO} + 6 \text{ H}_2\text{O}$

molar masses: $NH_3 = 17.03 \text{ g}$, $O_2 = 32.00 \text{ g}$, NO = 30.01 g, $H_2O = 18.02 \text{ g}$

(1) (7 pt) It is not safe to put aerosol canisters in a campfire, because the pressure inside the canisters gets very high and they can explode. If I have a 1.0 liter canister that holds 2 moles of gas, and the campfire temperature is 1400° C, what is the pressure inside the canister?

atm
$$V_1 = 1.0 \text{ L}$$
 $h = 2 \text{ mol}$
 $T_1 = 1400^{\circ}\text{C} + 273 = 1673 \text{ K}$
 $PV = nRT$
 $P = nRT = 2 (0.0821) (1673) = 275 \text{ atm}$
 $V_1 = 1400 \text{ L}$
 $V_2 = 1673 \text{ K}$
 $V_3 = 1673 \text{ K}$
 $V_4 = 1673 \text{ K}$
 $V_5 = 1673 \text{ K}$
 $V_6 = 1673 \text{ K}$
 $V_7 =$

17) (10 pt) If I place 3 moles of N₂ and 4 moles of O₂ in a 35 L container at a temperature of 25⁰ C, what will the pressure of the resulting mixture of gases be?

19) (10 pt) A sample of helium gas initially at 37.0 °C, 785 torr and 2.00 L was heated to 58.0 °C while the volume expanded to 3.24 L. What is the final pressure in atm?)

 $P_1 \frac{V_1}{T_1} = \frac{P_2 V_2}{T_2} = \frac{785 \text{ for } (2.06)}{37.0 + 273} = \frac{P_2 (3.24 L)}{58.0 + 273}$

P2 = 785 x 2 × (58.0 + 273) = 517 form 517 torr x / atm = (0.681 otm)