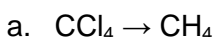


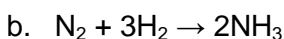
Complete each of the following problems. For numerical problems, you must show your work in order to possibly earn full credit. You may use your book, **but you may not seek help from anyone other than Dr. Lamp**. Submission of this quiz is your assertion that it was completed in accordance with this rule. The quiz score will be scaled to a maximum of 10 points.

Due in class Friday, September 8

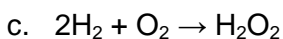
1. Based on the Dalton's atomic theory and the models that framed it, determine whether the following reactions are allowed or not. Briefly justify your answers. (6 pts)



Not allowed because the identities of atoms have changed



Allowed because identities don't change and because law of conservation of matter is followed.



Not allowed because the law of conservation of matter is violated.

2. Element X forms three different compounds with element Y. Based on the information in this table, what are the formulas of compounds 2 and 3? Justify your answers. (6 pts)

Compound	Formula	Mass of Y per gram of X
1	XY_6	2.82 g
2	$\text{XY}_?$	1.41 g
3	$\text{XY}_?$	0.94 g

Comparing the mass ratios of compounds 1 and 2, compound 1's mass ratio is twice that of compound 2's, indicating that there is twice as much Y per gram of X in compound 1 than in compound 2. Therefore, the formula for compound 2 is XY_3

Using similar rationale for compounds 1 and 3, there is three times as much Y per gram of X in compound 1 and in compound three, making the formula for compound 3 XY_2 .

3. Complete the table for a neutral atom of each isotope. (5 pts)

Element name	phosphorous	sodium
Symbol	P	Na
Atomic number	15	11
Mass number	31	23
# of protons	15	11
# of neutrons	16	12
# of electrons	15	11