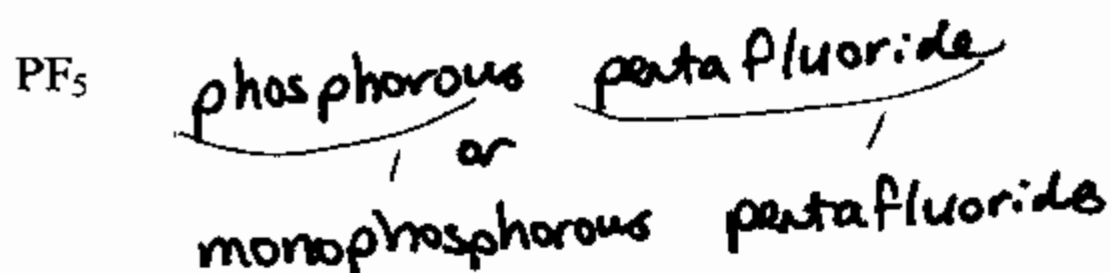


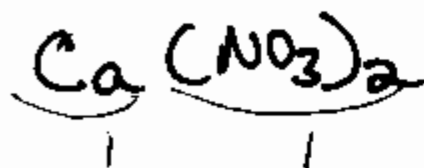
Quiz 2A
11 points

Name KEY
Maleckar/960/Fall 2009

1. Name the following compounds.



2. What is the formula of the compound made by calcium and the nitrate ion?



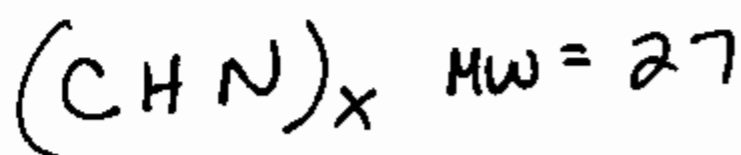
3. Adenine, a component of nucleic acids, contains 44.45% C, 3.73% H, and 51.82% N. Its molecular weight is 135.14 g/mole. What is its molecular formula? Show your work.

$$(44.45\% \text{ C}) \left(\frac{\text{mole}}{12\text{g}} \right) = 3.70 \text{ moles C}$$

$$(3.73\% \text{ H}) \left(\frac{\text{mole}}{1\text{g}} \right) = 3.73 \text{ moles H}$$

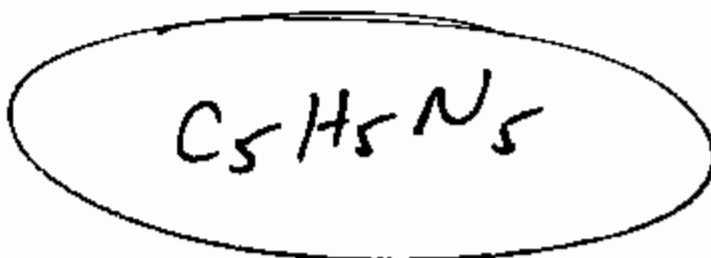
$$(51.82\% \text{ N}) \left(\frac{\text{mole}}{14\text{g}} \right) = 3.70 \text{ moles N}$$

$$\frac{3.70}{3.70} = 1 \quad \frac{3.73}{3.70} \approx 1 \quad \frac{3.70}{3.70} = 1$$



$$\frac{135}{27} = 5$$

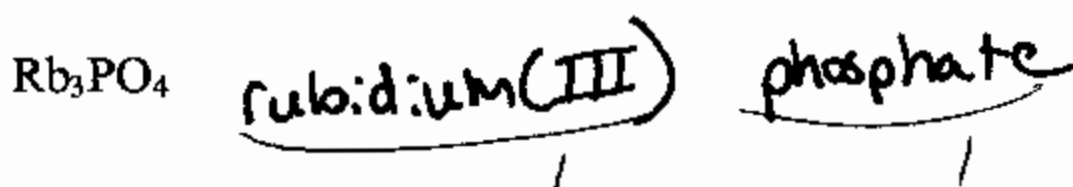
5 pts.



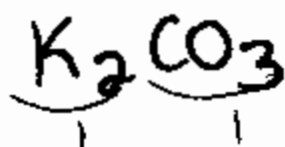
Quiz 2B
11 points

Name KEY
Maleckar/960/Fall 2009

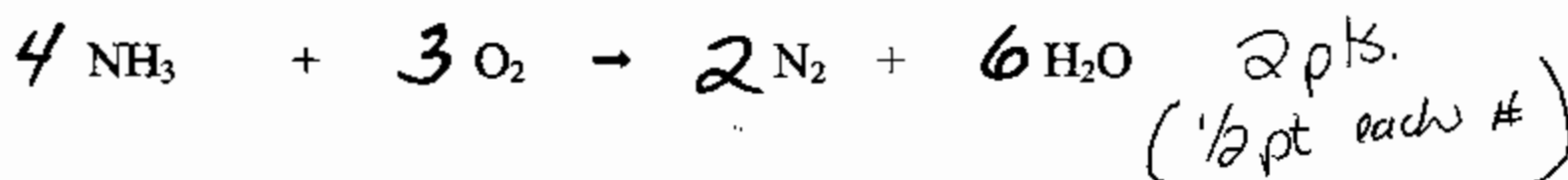
1. Name the following compounds.



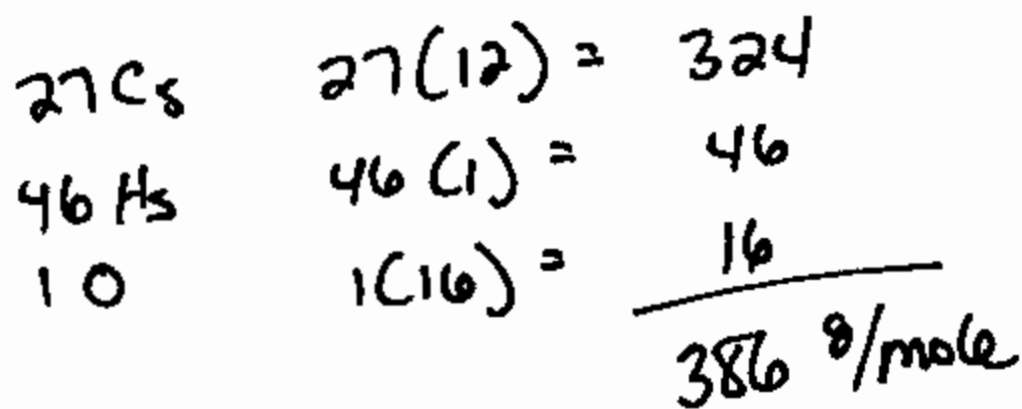
2. What is the formula of the compound made by potassium and the carbonate ion?



3. Balance the following reaction.



4. What is the percent of hydrogen, by mass, in cholesterol, $C_{27}H_{46}O$?

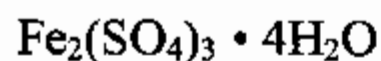


$\frac{46}{386} \times 100 = 11.9\%$

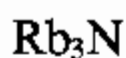
Quiz 2C
11 points

Name KEY
Maleckar/960/Fall 2009

1. Name the following compounds.



iron (III) sulfate tetrahydrate



rubidium (III) nitride



lead (II) permanganate

2. Indigo is 73.27% C, 3.84% H, 10.68% N, and the remainder is oxygen. Its molecular mass is 262.3 g/mole. What is its molecular formula?

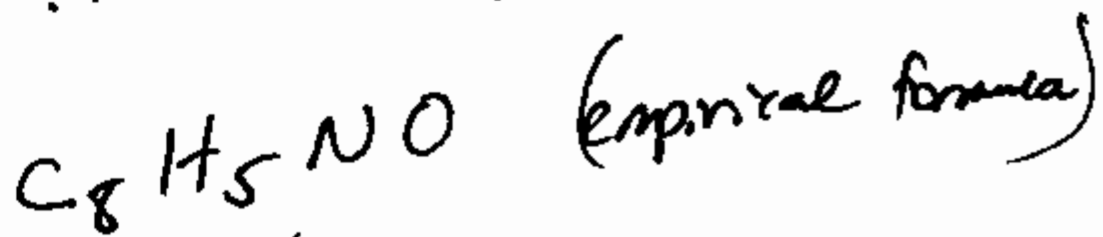
$(73.27\% \text{C}) \left(\frac{\text{mole}}{12\text{g}} \right) = 6.11 \text{ moles C}$

$\frac{6.11}{.763} = 8.01$ $\frac{3.84}{.763} = 5.03$

$(3.84\% \text{H}) \left(\frac{\text{mole}}{1\text{g}} \right) = 3.84 \text{ moles H}$

$\frac{.763}{.763} = 1$ $\frac{.763}{.763} = 1$

$(10.68\% \text{N}) \left(\frac{\text{mole}}{14\text{g}} \right) = 0.763 \text{ moles N}$



$(12.21\% \text{O}) \left(\frac{\text{mole}}{16\text{g}} \right) = 0.763 \text{ moles O}$

$\hookrightarrow \text{MW} = 131$

4 points

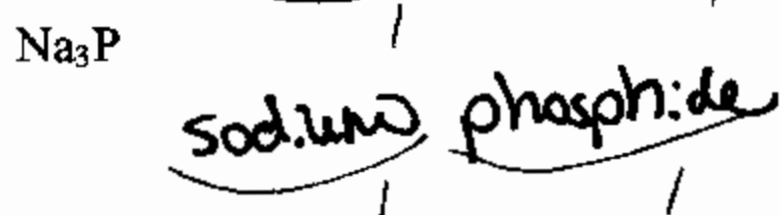
$\frac{262}{131} = 2$



Quiz 2D
11 points

Name KEY
Maleckar/960/Fall 2009

1. Name the following compounds.

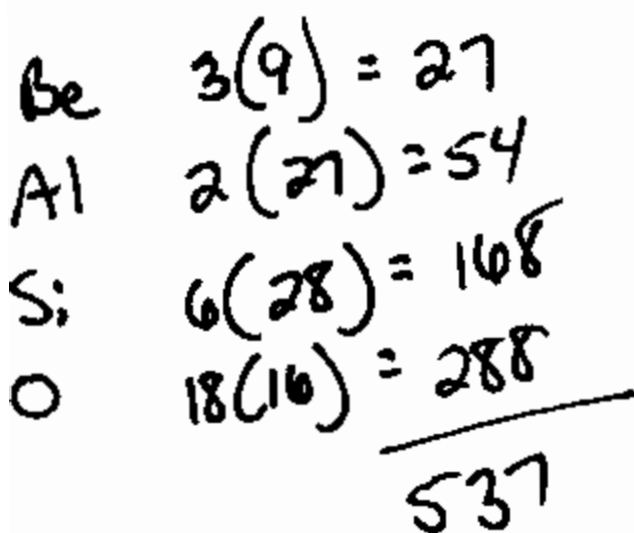


2. Balance the following reaction.



3 points - give partial accordingly

3. Calculate the percent (by mass) of Be in emerald, $\text{Be}_3\text{Al}_2\text{Si}_6\text{O}_{18}$.



2 pts.

$$\frac{27}{537} \times 100 = 5.03\%$$

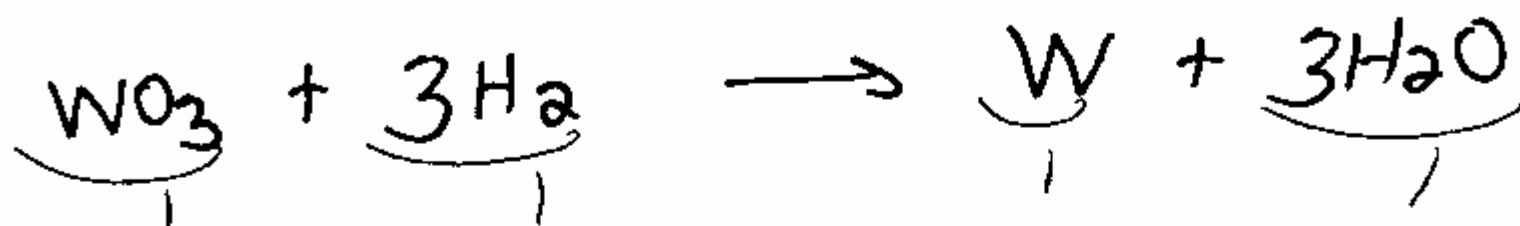
Quiz 2E
11 points

Name KEY
Maleckar/960/Fall 2009

1. What is the name for P_2O_5 ?

diphosphorous pentoxide or diphosphorous pentoxide

2. Write and balance the reaction that occurs between tungsten(VI) oxide and hydrogen, producing tungsten metal and water.



3. Monosodium glutamate (MSG) is 13.6% Na, 35.5% C, 4.8% H, 8.3% N, and 37.8% O by mass. What is the empirical formula of MSG?

$$(13.6\text{g Na}) \left(\frac{\text{mole}}{23\text{g}} \right) = 0.591 \text{ moles}$$

$$(35.5\text{g C}) \left(\frac{\text{mole}}{12\text{g}} \right) = 2.96 \text{ moles}$$

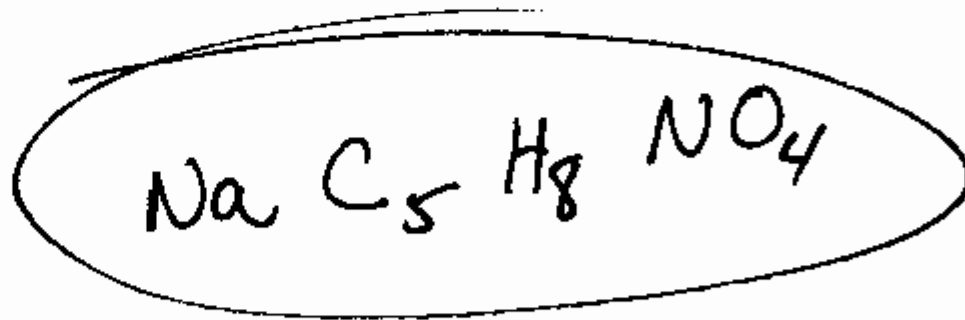
$$(4.8\text{g H}) \left(\frac{\text{mole}}{1\text{g}} \right) = 4.8 \text{ moles}$$

$$(8.3\text{g N}) \left(\frac{\text{mole}}{14\text{g}} \right) = 0.59 \text{ moles}$$

$$(37.8\text{g O}) \left(\frac{\text{mole}}{16\text{g}} \right) = 2.36 \text{ moles}$$

$$\frac{.591}{.59} = 1 \quad \frac{2.96}{.59} = 5 \quad \frac{4.8}{.59} = 8.1$$

$$\frac{.59}{.59} = 1 \quad \frac{2.36}{.59} = 4$$



5 points