

ACDB4011 CHEMISTRY QUIZ 2

10

NAME Katie Syme DATE: November 02, 2022

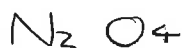
2p

1. (6 points) Indicate whether each of the following statements is true or false:

T F

☐ ☒ A C-C single bond is generally shorter than a C=C double bond.✓ ☐ ☒ One mole of magnesium has the same number of atoms as one mole of hydrogen gas.☐ ☒ Covalent bond forms when the atom shares an electron with another atom.☐ ☒ Among elements in a Main Group those with the largest radii have the smallest electronegativity.✓ ☒ ☐ Angstrom, Å, is the unit of the length of a chemical bond.☒ ☒ The C₂H₄ molecule has six bonding electron pairs and no lone pairs.

0p

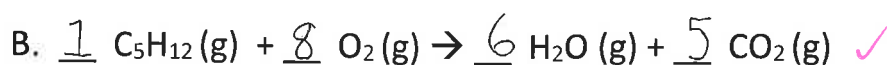
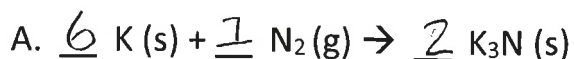
2. (8 points) How many nitrogen atoms are there in 30.0 g of N₂O₄. Give your answer in individual atoms, not moles.

$$PV = nR$$

$$P = \frac{\times 0.0821 \times}{30}$$

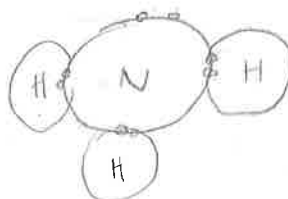
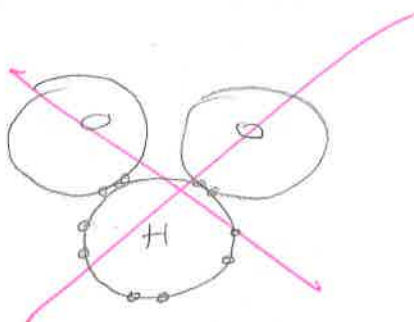
3. (6 points) Balance the following equations. Do not leave spaces blank. If needed, write "1" to indicate a single unit of a species.

6p



2p

4. (7 points) Using the Lewis structures to support your answer, determine which molecule contains only TWO unshared pairs of electrons, H_2O or NH_3 .



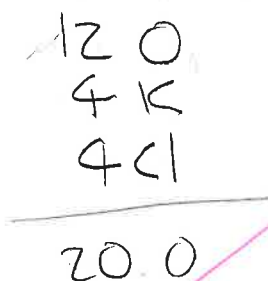
0p

5. (8 points) Potassium chlorate decomposes when heated to potassium chloride and oxygen, according to the following chemical equation: $2 \text{ KClO}_3 \text{ (s)} \rightarrow 2 \text{ KCl (s)} + 3 \text{ O}_2 \text{ (g)}$. How many grams of oxygen gas can be obtained from 24.5 g of potassium chlorate?



24.5g

6+6



atm

$\frac{3}{5}$
 $\frac{1}{5}$
 $\frac{1}{5}$