

ACDB4011 CHEMISTRY QUIZ 2

5

NAME CRAIG MACLELLAN DATE: November 02, 2022

Sp

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.
- ✓ ☒ ☒ F 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.
- ☒ ☒ F 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.

Op

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

30g

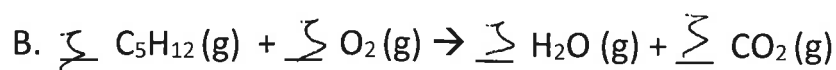
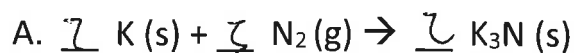
N₂O₄

N . . O

180

5

- 0p
3. (6 points) Balance the following equations. Do not leave spaces blank. If needed, write "1" to indicate a single unit of a species.



- 0p
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?