

ACDB4011 CHEMISTRY QUIZ 2

29

NAME

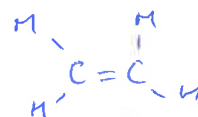
JOSH BOURLAY

DATE: November 02, 2022

6p

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.4p 2. (8 points) How many nitrogen atoms are there in 30.0 g of N₂O₄. Give your answer in individual atoms, not moles.

$$n = \frac{30}{92}$$

2p

$$MM(N_2O_4) = 92 \text{ g mol}^{-1}$$

$$n = 0.326 \text{ mol}$$

2p

$$\frac{28}{92} = 0.304$$

$$2n \text{ } 92g \text{ of } N_2O_4 \neq 28g \text{ of } N_2$$

$$1g \text{ } N_2O_4 = \frac{28}{92} = 0.304g$$

$$30g \text{ } N_2O_4 = 0.304 \times 30 = 9.13g$$

$$n = \frac{9.13}{92} = 0.099$$

$$0.099 \times 6.02 \times 10^{23} = 5.97 \times 10^{22}$$

10

- 6p



- $7p$



- 6p



✓

✓

370

$$= 36.75g$$

