Chemistry 150
Quiz 4
October 9, 2003

1. Calculate the formula weight of P₄. (2 points)

2. The synthesis of urea, a common fertilizer, is described by the following equation:
   \[ \text{CO}_2 + \text{NH}_3 \rightarrow \text{NH}_2\text{CONH}_2 + \text{H}_2\text{O} \]
   When the equation above is properly balanced with the smallest whole numbers, the respective coefficients are (1 point, circle one answer only):
   a. 2, 3, 2, 4
   b. 1, 2, 1, 1
   c. 2, 4, 2, 2
   d. 1, 4, 2, 2
   e. 2, 3, 2, 3

3. Draw the Lewis dot structure of the molecule CF₄. (4 points)

4. Balance the following equations (1 point each):
   a. \( \text{P} + \text{O}_2 \rightarrow \text{P}_4\text{O}_{10} \)
   b. \( \text{Sc}^{3+} (aq) + \text{SO}_4^{2-} (aq) \rightarrow \text{Sc}_2(\text{SO}_4)_3 (s) \)

5. Given the balanced equation:
   \[ \text{A} + 3\text{B} \rightarrow 2\text{C} \]
   The molar mass of C is 40.0 grams. If one mole of A produces 20.0 grams of C, what is the percent yield of the reaction? (1 point, circle one answer only)
   a. 100%
   b. 50%
   c. 25%
   d. 10%
   e. 1.0%

POINTS:________( of 10)