Quiz 6A

1. Answer the following questions about the reaction of calcium and nitrogen which forms calcium nitride (18 points).
   1. Balance the reaction below.

3 Ca (s) + N2 (g) 🡪 Ca3N2 (s)

* 1. What type of reaction is being described? \_\_\_\_\_\_\_synthesis\_\_\_\_\_\_\_\_\_
  2. How many moles of calcium are needed to react with 7.554 moles of nitrogen gas?
  3. How many molecules of calcium nitride are produced from the reaction of 3.450 moles of calcium with excess oxygen gas?

Or

* 1. How many grams of calcium nitride can be formed from the reaction of 15.6 g of nitrogen gas reacting with excess calcium?
  2. If 72.356 g of calcium nitride is actually formed, what is the percent yield?

1. Define the term limiting reagent (2 points).

The limiting reagent is the reactant that is all used up at the end of a chemical reaction.

Quiz 6B

1. Define the term excess reagent (2 points).

The excess reagent is the reactant that is leftover at the end of a chemical reaction.

1. Answer the following questions about the reaction of phosphorus and oxygen gas which forms diphosphorus pentaoxide (18 points).
   1. Balance the reaction below.

4 P (s) + 5 O2 (g) 🡪 2 P2O5 (s)

* 1. What type of reaction is being described? \_\_\_\_\_\_\_combustion\_\_\_\_\_\_\_\_\_
  2. How many moles of phosphorus are needed to react with 13.51 moles of oxygen gas?
  3. How many molecules of diphosphorus pentaoxide are produced from the reaction of 8.73 moles of phosphorus with excess oxygen gas?

Or

* 1. How many grams of diphosphorus pentaoxide can be formed from the reaction of 563.0 g of oxygen reacting with excess phosphorus?
  2. If 958.12 g of diphosphorus pentaoxide is actually formed, what is the percent yield?