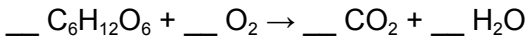
Chemical Reactions

Practice Questions

Directions: Choose the letter that corresponds to the correct answer.

1. What should be the coefficients of the reaction given below for it to be balanced?

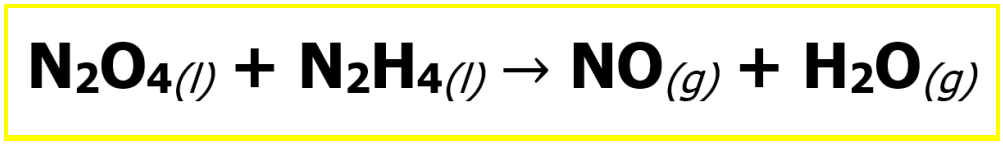


$$\_\_\ C_6H_{12}O_6 + \_\_\ O_2 \rightarrow \_\_\ CO_2 + \_\_\ H_2O$$

   a. 1, 6, 3, 6
   b. 1, 6, 6, 6
   c. 1, 3, 6, 6
   d. 1, 6, 6, 3

2. Which of the following statements is/are TRUE?
   a. In a redox reaction, the species that undergoes oxidation is the oxidizing agent.
   b. The oxidation number of reducing agents decreases after a redox reaction.
   c. In oxidation half-reaction, electron/s is/are written on the reactant side.
   d. All of the above
   e. None of the above

For numbers 3-5, a student is investigating the kinetics of the chemical reaction between N_2O_4 and N_2H_4. To carry this out, he accurately measured 1 mole of N_2O_4 and 2 moles of N_2H_4 and placed them inside an airtight container to allow them to react. The student wrote the reaction:



$$\mathbf{N_2O_4}_{(l)} + \mathbf{N_2H_4}_{(l)} \rightarrow \mathbf{NO}_{(g)} + \mathbf{H_2O}_{(g)}$$

3. Which is the limiting reactant?
   a. N_2O_4
   b. N_2H_4
   c. there is no limiting reactant
   d. more information needed

4. How many moles of NO will be produced?
    a. 1
    b. 2
    c. 3
    d. 6

5. How many moles of the excess reactant will remain unreacted?
    a. 0.5
    b. 1.0
    c. 1.5
    d. 2.0