Chem 117 Jasperse Quiz 5 Chapter 4 Name:
Due: Friday, October 29

1. Balance the following reaction:

   $Al + Cl_2 \rightarrow AlCl_3$

2. Balance the following reaction:

   $Na + NiCl_2 \rightarrow NaCl + Ni$

3. Balance the following reaction:

   $C_7H_{14} + O_2 \rightarrow CO_2 + H_2O$

4. Which of the following statements is <u>false:</u>
   - $Al + Cl_2 \rightarrow AlCl_3$ (unbalanced) is a <u>combination</u> reaction
   - $Al + Cl_2 \rightarrow AlCl_3$ (unbalanced) is a <u>redox</u> reaction
   - $Al + Cl_2 \rightarrow AlCl_3$ (unbalanced) is a <u>combustion</u> reaction
   - $Na + NiCl_2 \rightarrow NaCl + Ni$ (unbalanced) is a <u>single replacement</u> reaction
   - $C_7H_{14} + O_2 \rightarrow CO_2 + H_2O$(unbalanced) is a <u>combustion</u> reaction

5. Shown below are two reactions which are favorable and really happen. Which of the following statements would be false?

   $3Na + Al^{3+} \rightarrow 3Na^{+} + Al$ this does happen
   $2Al + 3Fe^{2+} \rightarrow 2Al^{3+} + 3Fe$ this does happen

   a. Aluminum loves electrons more than does sodium. If one of the two is going to be cationic, it's better for sodium to be cationic than for aluminum to be cationic.
   b. Aluminum loves electrons more than does iron. If one of the two is going to be cationic, it's better for iron to be cationic than for aluminum to be cationic.
   c. If elemental sodium was put in contact with Fe^{2+}, it's likely that sodiums would transfer electrons so that iron would become neutral and sodium would become cationic, since sodium seems to be most willing to be cationic and iron least willing
   d. In terms or "activity" as electron givers, the pattern (for the neutral elements) would be Na > Al > Fe

6. What is the molar mass for Na_2O (three sig figs is enough)?

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7. What is the molar mass for $Ca(NO_3)_2$?

8. How many hydrogen atoms would be present in 10.0 g of H_2O? (In actual scientific notation, not in moles)

9. If you have 14g of H_2O, how many moles of H_2O would you have?

10. If you have 2.6 moles of iron(II) nitrate, how many grams of iron(II) nitrate would you have? (show work)

11. Write out and balance the reaction between elemental sodium and Br_2? If you put in 15 grams of sodium, how many moles of Br_2 would react, and how many moles of NaBr would be producted? (Show work)

12. Write out and balance the reaction for the combusion of C_4H_8. If you combust 25 grams of C_4H_8, how many grams of CO_2 would form? (Show work)

Did you remember to write your name on the front?