Bauck's CHEMISTRY Ch. 5 Test Review *This is an optional assignment due the day of the test.*

Materials: loose leaf paper, pen and/or pencil, calculator (You will be given a periodic table.)
Test date: _____
Test value: 200 points
Test format: multiple choice**;** short answer essays; math problems;
electron configurations:

One section:

a) element name
b) CONDENSED electron configuration
c) VALENCE electron configuration
d) VALENCE orbital "boxes" with electron arrows

One section:

a) element name
b) COMPLETE electron configuration, underline the valence parts
c) how many electrons are in the valence shell
d) how many electrons are in each energy level in order

Equations given on test: $c = \lambda \nu$ $E = h \nu$
Constants given on the test: $c = 3.0 \times 10^{8}$ m/s $h = 6.626 \times 10^{-34}$ Js

TOPICS TO STUDY:

1) **Antiparallel spin**—What is this? What is its importance to electrons in "shells"?
2) **Aufbau diagram**—What is this? Contrast to electron configurations using the periodic table. (NOTE: There will be no Aufbau diagram available on the test.)
3) **Electron configuration**—What is it? How is it done with the periodic table? Contrast and be able to write out the following:
    a) **Complete electron configurations**
    b) **Condensed (abbreviated, Noble Gas) electron configurations**
    c) **Valence electron configurations**
    d) **Drawing of valence orbital "boxes"**

    Choose an element and give an example of a-d for this review.
4) **em**– What does this mean?
5) **em spectrum**—List the types of waves in order from low to high energy.
6) **Excited state**—What is this? Contrast with ground state.
7) **Ground state**—What is this?
8) Summarize the **Heisenberg Uncertainty Principle**.
9) **Noble Gas configuration**—What is this? Identify examples.
10) **Orbitals—**What are they? Be able to identify correct and incorrect orbital designations. Give an example of each.
11) **Principal energy level (n) –**What is this?
12) **Quantum**—What is this?
13) Symbols—What do the following mean? **c, λ, E, h, ν** (Greek nu), **v** (letter v)
14) **Sublevels**—What are they? What shapes can they be? What four letters are assigned to them?
15) **Superscript** vs. exponent—Which is used in electron configurations?
16) **Valence**—What is it? How does it relate to electron configurations?
17) **Wave equations**—Be able to solve them. Give an example of each for this review.
    a) $c = \lambda \nu$ b) $E = h \nu$
18) **Waves**— Be able to draw and identify the parts of a wave. Define the following:
    a) **origin** b) **crest** c) **trough** d) **amplitude** e) **wavelength**
19) **Wave-particle duality of nature**—Explain what this means.

*** Note *** There will be at least one question pertaining to material in past chapter(s) or unit(s).