

### Bauck's CHEMISTRY Ch. 3 & 8 Test Review

*This is an optional assignment due the day of the test.*

- Materials:** loose leaf paper, pen and/or pencil (You will be given a periodic table.)
- Test date:** \_\_\_\_\_
- Test value:** 200 points
- Test format:** multiple choice; “thought questions” (short essays) ; “periodic trends” questions (like the chapter practices); “element analysis” questions (see the following format):
- For each element, give the following:*
- |  |   |
|--|---|
| a) <i>group number</i>                   | e) <i>number of valence electrons</i>                   |
| b) <i>period number</i>                  | f) <i># of electrons needed to fill valence “shell”</i> |
| c) <i>atomic number</i>                  | g) <i>Draw the electron dot (Lewis dot) diagram.</i>    |
| d) <i>metal, nonmetal, or metalloid?</i> |   |

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#### Topics to study:

- 1) **Alkali metals**— Which group is this? Identify the elements in that group.
- 2) **Alkaline earth metals**— Which group is this? Identify the elements in that group.
- 3) **Atomic size**—What is it? Be able to identify trends across a period and down a group.
- 4) **Chalcogens**—Which group is this? Identify the elements in that group.
- 5) **Crystal lattice shapes**—Be able to identify what “FCC,” “BCC,” and “HCP” mean. Draw these three shapes.
- 6) **Conductivity**—What is this? Where and how does this occur?
- 7) **Delocalized electrons**—Where are these observed? What is their significance?
- 8) **Diatom molecules**—What is this? What are the “Super Seven”?
- 9) **Electron dot diagrams (Lewis Structures)**—How should the dots be placed (use the method given in the notes)? Be able to do them for any given atom. Give one example for this review.
- 10) **Electronegativity**—What is this? Be able to identify trends across a period and down a group.
- 11) **Groups**—Where are they? What does the “A” group number tell you about the number of valence electrons in an atom?
- 12) **Halogens**—Which group is this? Identify the elements in that group.
- 13) **Inert**—What does this mean? Which elements are inert?
- 14) **Inner transition elements**—Where are they? What are other names for this area? Contrast with **transition elements**.
- 15) **Ionization energy**—What is it? Be able to identify trends across a period and down a group.
- 16) **Law of Octaves**—What does this law say? What is an octave?
- 17) **Mendeleev**—What was his contribution to the periodic table?
- 18) **Metals**—Where are they? Identify examples and characteristics.
- 19) **Metalloids**—Where are they? What are other names for these elements? Identify examples and characteristics.
- 20) **n-doping**—How does this happen? Be specific.
- 21) **Noble Gases**—Which group is this? Identify the elements in that group. Why are they inert?
- 22) **Nonmetals**—Where are they? Identify examples and characteristics.
- 23) **Octet rule**—How does this work? What are some exceptions to this rule?
- 24) **p-doping**—How does this happen? Be specific.
- 25) **Periodicity**—What is this? Give examples.
- 26) **Periods**—Where are they? How many are there? What does the period number tell you about the number of electron “shells” in an atom?
- 27) **Representative elements**—Where are they? Contrast with **transition elements**.
- 28) **Shielding effect**—What is this? How does this affect atomic size trends across periods?
- 29) **Semiconductors**—What are they? (see **metalloids**)
- 30) **Transition elements**—Where are they? Contrast with **representative elements**.
- 31) **Triad**—What is this? Give an example of what is a triad and what isn't.
- 32) **Valence number**—What is this? How does this relate the electron dot diagrams and the placement of an atom in the periodic table?