

TOPIC 4 REVIEW

ATOMIC STRUCTURE & ELECTRON CONFIGURATIONS

There may be more of less questions focused on any topic listed below. Focus on all subjects equally. Review your notes and/or the notes online at MrRast.com to answer the following:

4.1

1. How does Dalton and the STM relate to each other?
2. Explain all of the scientific contributions in the understanding of the atomic structure in chronological order. Be sure to include: Dalton, Mendeleev, Meyer, Thomson, Milikan, Rutherford, Planck, Bohr, Heisenberg, and de Broglie.

4.2

1. How many protons, neutrons and electrons are in lead-204?
2. What is the atomic mass of zinc with 34 neutrons?

4.3

1. Write the electron configuration for: fluorine, iron, antimony and bismuth.
2. Draw the electron diagram for: silicon, chromium and thallium.
3. How many valence electrons are in: oxygen, sodium, calcium, helium, xenon, and boron?
4. How many core electrons are in: oxygen, sodium, calcium, helium, xenon, and boron?
5. Write an example of an electron configuration mistake that broken the Aufbau Principle.
6. Write an example of an electron configuration mistake that broken Hund's Rule.
7. Which of the following is/are incorrect subshell notations: 1s, 5s, 2d, 1p, 5d, 3f?

4.4

1. The $n=2$ contain how many p orbitals?
2. What is the lowest energy shell that contains d orbitals?
3. Which of the following has incorrect n, l and m_l quantum numbers? 2,0,0; 3,1,-1; 2,1,2; 4,4,-2; 5,2,0
4. How many orbitals are in the third shell?
5. Which quantum numbers can be the same number for the orbitals that they designate (n, l, m_l, m_s)?
6. What is the quantum number for the following electrons?

