Atom, Isotope, Ion Test Review Guide

On your test you will be able to use a calculator and a periodic table. You will have today and tomorrow to work on your study guide in class. It worth your while to bring your while to bring your completed study guide to class the day of the test.

1) Create a model of Aluminum including the correct number and placement of it's subatomic particles. Please label it's PROTONS, NEUTRONS, ELECTRONS, NUCLEUS, and ENERGY LEVEL.

2) Create a model of a Mg^{2+} ion. Please label it's PROTONS, NEUTRONS, ELECTRONS, NUCLEUS, and ENERGY LEVEL.

3) Create a model of a Phosphorus-31 and Phosphorus-32 isotopes. Please label it's PROTONS, NEUTRONS, ELECTRONS, NUCLEUS, and ENERGY LEVEL.

4) Compare and contrast the composition of atoms, isotopes and ions.

5) Describe how our understanding of the atom has changed based on the experiments of Dalton, Rutherford, Bohr and Schrodinger. Please include information on their experiments and/or calculations in your answer.

6) Model and describe what causes atomic emission spectra and why different elements give off different colors of light. Use the following terms correctly while describing how an atom gains and loses energy. GROUND STATE, EXCITED STATE, QUANTUM, PHOTON, ELECTRON, ORBITALS, LIGHT

7) Uranium is used in nuclear reactors and is a rare element on earth. Uranium has three common isotopes. If the abundance of $^{234}{}_{92}U$ is 0.01%, the abundance of $^{235}{}_{92}U$ is 0.71%, and the abundance of $^{238}{}_{92}U$ is 99.28%, what is the average atomic mass of uranium?

8) Titanium has five common isotopes: $^{46}{}_{22}Ti$ (8.0%), $^{47}{}_{22}Ti$ (7.8%), $^{48}{}_{22}Ti$ (73.4%), $^{49}{}_{22}Ti$ (5.5%), $^{50}{}_{22}Ti$ (5.3%). What is the average atomic mass of titanium?

9) Calculate the molar mass of NaF, $SrBr_2$, and $Al_2(SO_4)_3$.

10) Predict the formula of the ionic compound when the following elements bond together:

1) K and Cl

2) Na and O

3) Mg and F

4) Al and S