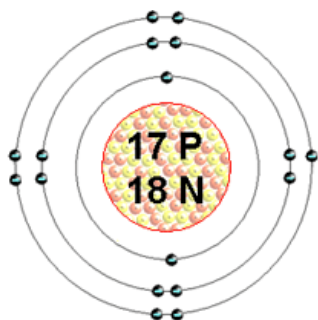


FALL 2011 SEMESTER EXAM REVIEW KEY

~ 1 - 16 ~

- List and describe the 3 subatomic particles, including charge, location and mass.
 - ✓ **Proton – positive charge, located in nucleus, mass of 1 AMU**
 - ✓ **Neutron – neutral (0) charge, located in nucleus, mass of 1 AMU**
 - ✓ **Electron – negative charge, located in electron cloud, mass of .00125 AMU**
- Explain each part of the element cube including atomic mass, atomic number and symbol.
 - ✓ **Atomic number = number of protons and electrons in one atom of the element**
 - ✓ **Atomic mass = the average mass of one atom of the element; protons plus neutrons**
 - ✓ **Element symbol = shorthand letters representing the element name**
- Compare the hydrogen and helium families in regards to reactivity. Why is one more reactive?
 - ✓ **Hydrogen family is the most reactive; has only 1 valence electron – wants to be full**
 - ✓ **Helium family (noble gases) are the least reactive; has a full valence shell – has no need of extra electrons (non-reactive)**
- List the number of valence electrons for each of the following elements: Calcium, Lithium, Boron, Phosphorus, Sodium and Nitrogen.
 - ✓ **Calcium = 2;**
 - ✓ **Lithium = 1;**
 - ✓ **Boron = 3;**
 - ✓ **Phosphorus = 5;**
 - ✓ **Sodium = 1;**
 - ✓ **Nitrogen = 5**
- What is a period in regards to the periodic table? What can it tell us about elements?
 - ✓ **A period is a row across the periodic table.**
 - ✓ **Every element in a period shares the same number of electron orbitals; ie. all elements in period 2 have 2 electron orbits**
- Draw a Bohr model of an atom of Chlorine.



- How many protons would one molecule of Hydrogen contain?
 - ✓ **2; one molecule of hydrogen is H₂**
- How many electrons would one molecule of water contain?
 - ✓ **10; same as protons**
- How many neutrons would two molecules of water contain?
 - ✓ **16; hydrogen has no neutrons and oxygen has 8**

10. Define the following: mixture, compound, molecule, element.
- ✓ **Element – the most simple form of a substance; cannot be broken down further and still retain same properties**
 - ✓ **Compound – two or more elements chemically combined**
 - ✓ **Mixture – two or more substances that do not chemically combine when put near each other**
 - ✓ **Molecule – two or more atoms chemically combined**
11. What is the difference between a physical change and a chemical change?
- ✓ **A physical change is merely a change in form – the substance remains the same; a chemical change results in a completely different substance than the original.**
12. What is a chemical formula? Why do we use them?
- ✓ **A simple way to describe a molecule;**
 - ✓ **it is easier than writing out the name of each element in a molecule**
13. What is a chemical equation? What must be true about all chemical equations?
- ✓ **A chemical equation is a way to express a chemical reaction using chemical formulas**
 - ✓ **All chemical equations must have the same number of each element on each side of the equation; they must be balanced**
14. How many atoms are in the chemical formula 4CuSO_4 ?
- ✓ **24**
15. What does the '4' in front of CuSO_4 mean in question 14?
- ✓ **That there are 4 molecules of that compound**
16. Explain why all chemical equations must be balanced? What does that mean?
- ✓ **Due to the law of conservation of mass/matter;**
 - ✓ **matter cannot be created or destroyed, it can only be rearranged**

Possible 33 checks
X 3.1 per check

Potential grade = 102