

Debre Markos University
Natural and computational science college
Chemistry department

University chemistry assignment two (chapter two only) for first year second semester students

Course code: Chem1012 Weight: 30% submission dead line: 20/09/2012

1. Chemical symbols are an abbreviation that we use to indicate an element or an atom of an element. The symbols for several common elements and their atoms take the first letter of the element but there are elements which does not take their first letter. Briefly explain why this phenomenon happens (3pt)?
2. In what way isotopes of a given element always different and in what way they are always the same (2pt)?
3. If an atom has 6 protons and has an atomic weight of 14, (3pt)
 - (a) The name of the element _____
 - (b) The atomic number of the element _____
 - (c) The number of neutrons is _____
4. What is the name for the element in Period 4 and Group 2 (IIA) of the Periodic Table (2pt)?
5. Caffeine is a central nervous system stimulant of the methylxanthine class. It is the world's most widely consumed psychoactive drug. Amolecule of caffeine contains 8 carbon atom, 10 hydrogen atom, 4 nitrogen and 2 oxygen atom. What are the molecular and empirical formulas of caffeine (3pt)?
6. What is the contribution of Dimitri Mendeleev rather than Lothar Meyer in order to arrange elements according to increasing atomic mass (3pt)?
7. The modern periodic table is used to organize all the known elements. What are the characteristics of this modern periodic table (2pt)?
8. Predict whether the following compounds are ionic or covalent: (4pt)
 - (a) SO_2
 - (b) CaF_2
 - (c) N_2H_4
 - (d) $\text{Al}_2(\text{SO}_4)_3$

9. Write the formulas for the following compounds: (3pt)

(a) Phosphorus pentachloride

(b) dinitrogen monoxide

(c) carbon tetrachloride

10. Fill the missing information on the chart. (7pt)

element	# of proton	# of electron	# of neutron	Atomic mass	Atomic number
Carbon					
oxygen					
nitrogen					
sulfur					
calcium					