

General Chemistry 1 Assessment

Tanya Demmel

AET/535

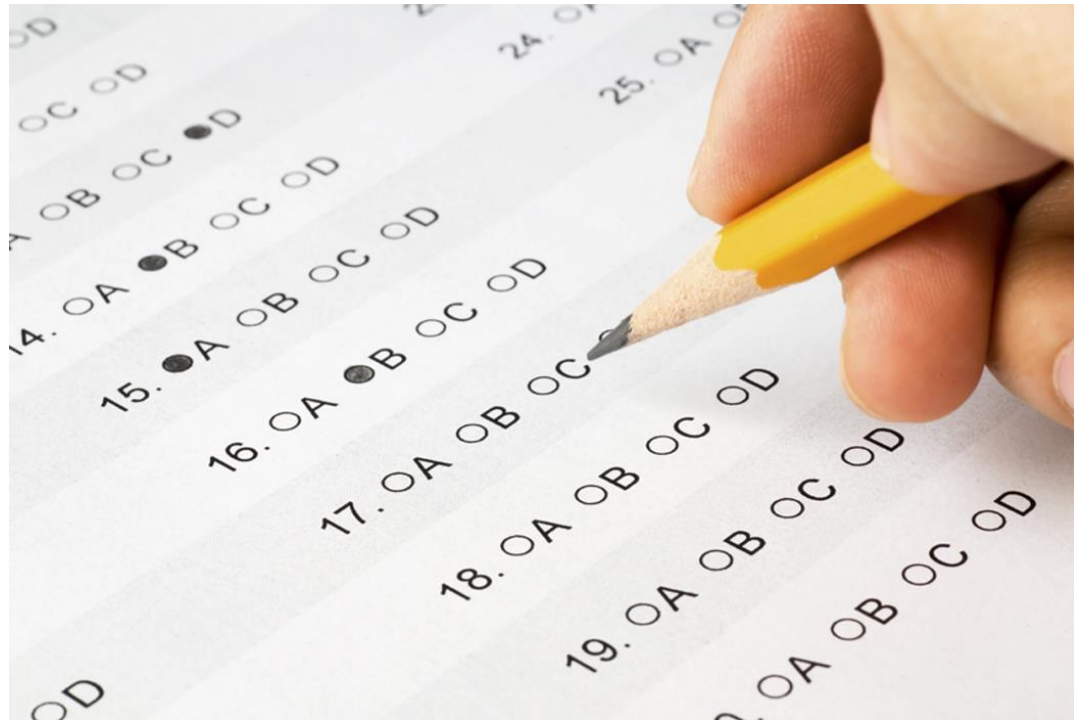
January 21, 2013

Brian Kasperitis

Instructional Goal

- General chemistry students will be able to identify properties, reactivity, safety concerns and proper disposal techniques of commonly used chemicals using print and online resources and apply the learning in laboratory experiments.

Assessment Questions



Place an “A” in front of the properties associated with an acid and a “B” in front of the properties associated with a base.

- ___ Feels slippery
- ___ Has a sour taste
- ___ Reacts with metals
- ___ Can cause a color change in some organic dyes (red cabbage juice)
- ___ Produces carbon dioxide when it reacts with limestone
- ___ Reacts with grease



Describe the proper steps to clean up a bleach spill.

Write the following reaction as an ionic equation.



Flammable waste should be stored in a
_____ container.

Match the terms to their definition

- ____ Ion
 - ____ Neutron
 - ____ Electron
 - ____ Molecule
 - ____ Proton
- A. Positively charged particle
 - B. A particle with no charge
 - C. A charged atom or molecule
 - D. A negatively charged particle
 - E. Two or more atoms bound together with no net charge



Describe what chemical group chlorine is a member of and how that impacts its reactivity.

A _____ can be identified by the hydroxyl group (-OH) attached to a carbon atom.



True or False, Alcohols are used as solvents, antiseptics, and buffers.

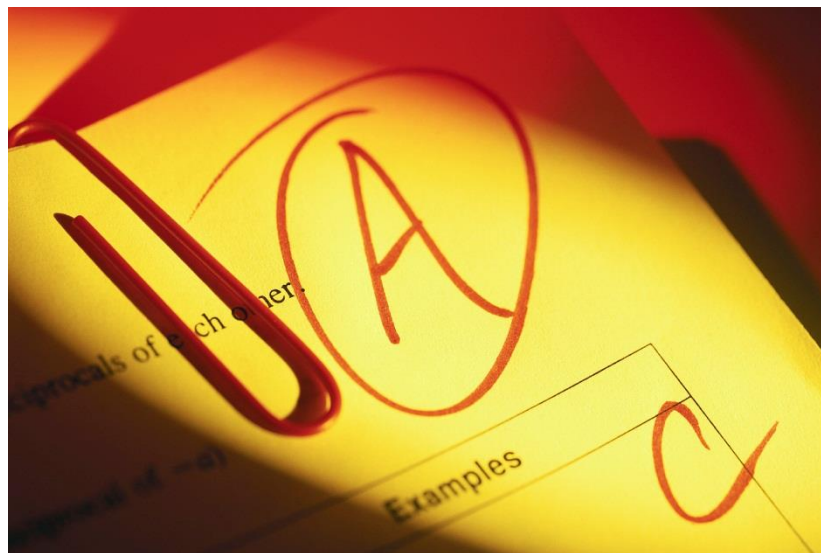


Define Avogadro's number and its use in chemistry.



The three phases of matter are:

Scoring Key



Place an “A” in front of the properties associated with an acid and a “B” in front of the properties associated with a base.

B Feels slippery

A Has a sour taste

A Reacts with metals

B Can cause a color change in some organic dyes (red cabbage juice)

A Produces carbon dioxide when it reacts with limestone

B Reacts with grease

("Chapter 12 Acids And Bases", n.d.).

Describe the proper steps to clean up a small (less than 10 mL) bleach spill.

- The spill area needs to be contained to avoid the chemical from mixing and reacting with other unknown compounds. The chemical can be absorbed using paper toweling or clay based absorbency product. Once the chemical is absorbed it can be disposed of in the trash, note large scale spills require special disposal. The area of the spill should be cleaned with water and clean paper toweling to ensure all of the chemical is removed. Bleach produces fumes and must be used and disposed of in a well ventilated area to avoid respiratory distress. Any questions on the proper handling of the chemical can be obtained online from the corresponding MSDS (Material Safety Data Sheet) (Clorox Company, 2011).

Write the following reaction as an ionic equation.

- $\text{HCl(aq)} + \text{NaOH(aq)} \rightarrow \text{NaCl(aq)} + \text{H}_2\text{O(l)}$
- $\text{H}^+(\text{aq}) + \text{Cl}^-(\text{aq}) + \text{Na}^+(\text{aq}) + \text{OH}^-(\text{aq}) \rightarrow \text{Na}^+(\text{aq}) + \text{Cl}^-(\text{aq}) + \text{H}_2\text{O(l)}$ ("Chapter 12 Acids And Bases", n.d.).

Flammable waste should be stored in a
_____ container.

Metal

("Teach Yourself Chemistry", 2013)

Match the terms to their definition

- __C_ Ion
 - __B_ Neutron
 - __D_ Electron
 - __E_ Molecule
 - __A_ Proton
- A. Positively charged particle
 - B. A particle with no charge
 - C. A charged atom or molecule
 - D. A negatively charged particle
 - E. Two or more atoms bound together with no net charge

("Teach Yourself Chemistry", 2013)

Describe what chemical group chlorine is a member of and how that impacts its reactivity.

Chlorine is a halogen, a highly reactive chemical group. Elements in this group have a single negative charge as an ion and can bond together in groups of two for mild stability. The negative ions react quickly with positive ions or molecules with covalent bonds less strong than the ones formed with chlorine ("Teach Yourself Chemistry", 2013).

A _____ can be identified by the hydroxyl group (-OH) attached to a carbon atom.

- Alcohol
- ("Teach Yourself Chemistry", 2013)

True or False, Alcohols are used as solvents, antiseptics, and buffers.

- False (alcohols are not used as buffers)
- ("Teach Yourself Chemistry", 2013)

Define Avogadro's number and its use in chemistry.

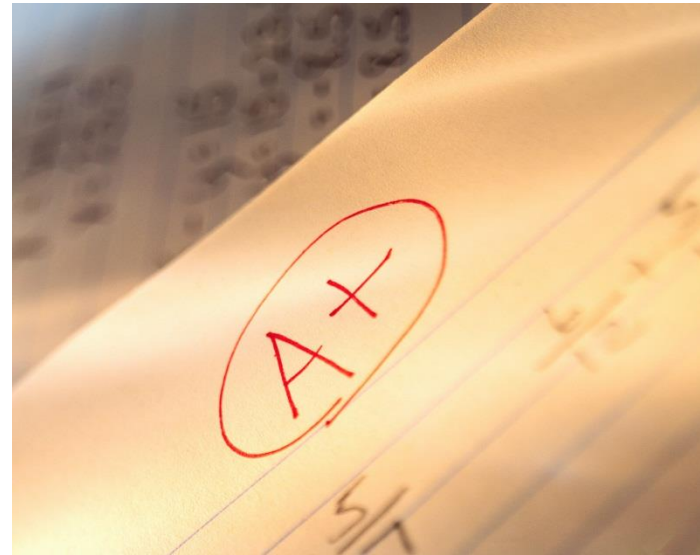
- Avogadro's number is the mole or 6.022×10^{23} and used as a measurement unit. It is used in chemical equations to simplify the calculations of the amount of compounds needed to fully complete a reaction. The number of moles of a compound can be used to calculate the grams needed using the compounds molecular weight ("Teach Yourself Chemistry", 2013).

The three phases of matter are:

- Solids, liquids and gases ("Teach Yourself Chemistry", 2013).

Grading Scale

- A = 90 - 100
 - B = 80 - 89
 - C = 70 - 79
 - D = 60 - 69
 - F = 59 and below
- (Suskie, 2009)



References

- Chapter 12 Acids and Bases. (n.d.). Retrieved from http://virtual.yosemite.cc.ca.us/lmaki/Chem142/chap_outlines/chapter12.htm
- Clorox Company. (2011). *Products MSDS*. Retrieved from <http://www.thecloroxcompany.com/products/msds/>
- Suskie, L. (2009). *Assessing student learning a common sense guide* (2nd ed.). San Francisco, CA: Jossey-Bass.
- Teach yourself chemistry. (2013). Retrieved from <http://chemistry.about.com/od/chemistry101/a/learnchemistry.htm>