

CHM 100 LABORATORY EXERCISE 6

Multiple Choice: Record your answers on the Website

Identify the letter of the choice that best completes the statement or answers the question.

___ 1. About 29 million tons of aluminum is needed to meet worldwide demand each year. The primary ore mineral of aluminum is bauxite. Bauxite consist of 45 – 60 percent of what type of aluminum compound?

Source: <http://www.rocksandminerals.com/aluminum/aluminum.htm>

- a. aluminum nitride
- b. aluminum nitrate
- c. aluminum oxide
- d. aluminum sulfide
- e. aluminum fluoride

___ 2. Determine the number of moles of atoms in 11.4 grams of aluminum.

- a. 0.555 moles Al
- b. 0.423 moles Al
- c. 0.840 moles Al
- d. 1.08 moles Al
- e. 1.32 moles Al

___ 3. Which of the following is a fatty acid found in butter?

Source: <http://webexhibits.org/butter/compounds-fatty.html>

- a. oxalic
- b. sulfuric
- c. oleic
- d. acetic
- e. phosphoric

___ 4. Butyric acid (butanoic acid) is one of the saturated short-chain fatty acids responsible for the characteristics flavor in butter. The chemical formula for butyric acid is $\text{CH}_3\text{CH}_2\text{CH}_2\text{COOH}$. How many atoms of hydrogen are contained in 35 molecules of butyric acid?

- a. 8 atoms H
- b. 4.82×10^{24} atoms H
- c. 6.02×10^{23} atoms H
- d. 16 atoms H
- e. 280 atoms H

___ 5. Calculate the percentage composition of butyric acid, $\text{CH}_3\text{CH}_2\text{CH}_2\text{COOH}$.

- a. 12.6% C, 4.8% H, 82.6% O
- b. 33.3% C, 6.7% H, 40.0% O
- c. 60.7% C, 9.1% H, 30.2% O
- d. 54.5% C, 9.1% H, 36.4% O
- e. 36.4% C, 9.1% H, 54.5% O

___ 6. Ethanol is an alcohol-based alternative fuel produced by fermenting and distilling starch crops that have been converted into simple sugars. What is another common use of ethanol?

Source: <http://en.wikipedia.org/wiki/Ethanol>

- a. Beverage
- b. Laundry detergent
- c. Soil substitute
- d. Laundry starch
- e. Hair colorant

___ 7. What is the mass of 2.50 moles of $\text{CH}_3\text{CH}_2\text{OH}$.

- a. 100. g $\text{CH}_3\text{CH}_2\text{OH}$
- b. 102 g $\text{CH}_3\text{CH}_2\text{OH}$
- c. 46.0 g $\text{CH}_3\text{CH}_2\text{OH}$
- d. 115 g $\text{CH}_3\text{CH}_2\text{OH}$
- e. 239 g $\text{CH}_3\text{CH}_2\text{OH}$

___ 8. What is rock salt?

Source: <http://www.soest.hawaii.edu/GG/ASK/rocksalt.html>

- a. MgCl_2
- b. NaCl
- c. MgSO_4
- d. CaCl_2
- e. K_2SO_4

- ____ 9. Calculate the mass of 5.689×10^{44} particles NaCl.
- a. 5.854×10^{66} g NaCl
 - b. 9.450×10^{20} g NaCl
 - c. 5.528×10^{22} g NaCl
 - d. 3.328×10^{46} g NaCl
 - e. 1.615×10^{19} g NaCl

____ 10. During the process of extracting sugar from beets, a pulp by product is turned into pellets and commonly used for?

Source: <http://www.sucrose.com/lbeet.html>

- a. a fuel source
- b. a fertilizer
- c. a food product for people
- d. a food product for animals
- e. an insulation product

____ 11. Calculate the amount of mass of 8.9×10^{24} molecules of sugar ($C_{12}H_{22}O_{11}$)

- a. 1.6×10^{46} g $C_{12}H_{22}O_{11}$
- b. 1.8×10^{51} $C_{12}H_{22}O_{11}$
- c. 5.4×10^{48} g $C_{12}H_{22}O_{11}$
- d. 15 g $C_{12}H_{22}O_{11}$
- e. 5100 g $C_{12}H_{22}O_{11}$

____ 12. Which of the following is not a raw material for the production of aspirin?

Source: <http://www.aspirin-foundation.com/what/reactions.html>

- a. Phenol, C_6H_5-OH
- b. Nitrogen dioxide, NO_2
- c. Carbon Dioxide, CO_2
- d. Hydrogen, H
- e. Sodium Hydroxide, NaOH

____ 13. Calculate the moles contained in 545 grams of aspirin, $C_9H_8O_4$.

- a. 3.03 mol $C_9H_8O_4$
- b. 180. mol $C_9H_8O_4$
- c. 98100 mol $C_9H_8O_4$
- d. 9.05×10^{-22} mol $C_9H_8O_4$
- e. 3.28×10^{26} mol $C_9H_8O_4$

____ 14. Can it be harmful to breath 100% oxygen?

Source: <http://www.howstuffworks.com/question493.htm>

- a. yes
- b. no

____ 15. Calculate the mass of one oxygen atom.

- a. 2.557×10^{-22} g O
- b. 5.333×10^{-23} g O
- c. 2.657×10^{-23} g O
- d. 1.330×10^{-22} g O
- e. 3.764×10^{-22} g O