Chem 105 Exam 1. Jordan, Fall 2004

Name_____

By submitting this exam, I affirm that I have neither given nor received unauthorized aid on this assignment.

You must show all work for credit. Express each answer to the correct number of significant figures.

Useful information: 1 in = 2.54 cm, 1 kg = 2.20 lbs, 1m = 1.0936 yds, K = °C + 273,

$°F = \dfrac{9}{5}(°C) + 32$, $°C = \dfrac{5}{9}(°F - 32)$, 1 gal = 3.7854 L

(1) (2 points) How many microliters (µL) are in a liter?

      a.   0.01

      b.   100

      c.   1000

      d.   1,000,000

(2) (2 points) Which of the following is a derived unit?

      a.   meter

      b.   kilogram

      c.   liter

      d.   mole

(3) (2 points) The horizontal rows in the periodic table are called

      a.   periods

      b.   densities.

      c.   groups

      d.   classes

(4)(2 points) Three liquids are poured into a graduated cylinder to form a density column. The density of liquid A is 0.8g/mL , the density of liquid B is 1.1 g/mL, and the density of liquid C is 1.5 g/mL. An object is then dropped into the density column.
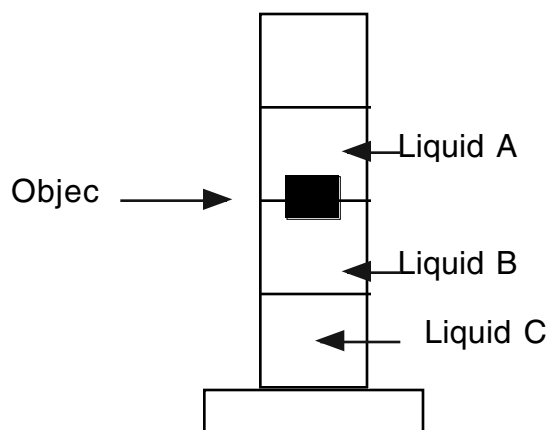
Which of the following best describes the density of the object
(a) less than 0.8 g/mL
(b) 0.8 g/mL
(c) between 0.8 g/mL and 1.1 g/mL
(d) between 1.1 g/mL and 1.5 g/mL

(5) (2 points) A student measured the diameter of a sphere and determined the average value. His measurements are 6.50 cm, 6.49 cm, 6.48 cm, and 6.50 cm. If the true diameter is 6.08 cm, what can be said about the student's results?

      a.   They are accurate and precise.
      b.   They are accurate but not precise.
      c.   They are precise but not accurate.
      d.   They are neither precise nor accurate.

(6) (4 points) Write the names of the elements next to their chemical symbol below.

(a) C

(b) W

(c) Na

(d) P

(7)(4 points) List the answers to the following problems to the correct number of significant figures

(a) $\dfrac{(2.2334 \text{ x } 16.22)}{16.554 + 0.02} =$

(b) $(54.2 + 244) \text{x} (0.16 - 25.2) =$

(8)(2 points) Label each property below as a physical or chemical property.

(a) it burns in oxygen

(b) it rusts

(c) it is shiny

(d) it conducts electricity

(9) (2 points)List two extensive properties.

(10)(5 points) List five base SI units and the property each one represents.

(11)(4 points) The density of a liquid is 3.35 g/mL.
(a) What is the mass of 50.0 mL of this liquid?

(b) What is the volume of 50.0 g of this liquid

(12)(4 points) The hottest temperature in Berlin the summer Fahrenheit developed his temperature scale was 100 ºF. Express this temperature in ºC and K/

(13) (8 points) Perform the following conversions

(a) 20.0 gal into L

(b) 20.0 gal into mL

(c) 2.55 km into yards

(d) 2.55 km into inches

(14)(4 points) A car travels at 65 m/s.
(a) How far does the car travel in 3600 s?

(b) How long will it take the car to travel 3.00×10^4 m

Extra Credit: (4 points) Thieves are stealing a stack of gold bars from a safe. The bars are 25 cm long, 12 cm wide, and 5 cm tall. If the density of gold is 19 g/mL, what is the mass of one of the gold bars?

Could a thief realistically carry 10 bars in a bag?