Chemistry 115 Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Quiz 1a

Dr. Cary Willard February 5, 2014

All work must be shown to receive credit. Use correct significant figures.

1. (4 points) What is wrong with the expression “That is just a theory,” if by theory the speaker is referring to a scientific theory?

Scientific theories are backed by extensive data and have a high probability of being correct. Often people will refer to any idea, tested or not, as a theory. This does not meet the scientific definition of a theory. Scientific theories cannot be considered absolute truths however because science allows anything to be questioned and tested.

1. (2 points) Write the name or symbol for the following elements
	1. Magnesium Mg
	2. P phosphorous
2. (4 points) Write the following measurements in scientific notation with 4 significant figures.
	1. 68251598157 g 6.825 x 1010 g
	2. 0.0005759725 mL 5.760 x 10-4 mL
3. (4 points) Perform the following calculations and give the answer to the correct number of significant figures.
	1. 59.47 mL + 835.144 mL = 894.61 mL
	2. $\frac{8.34 g }{3.36654 mL}=$ 2.48 g/mL
4. (6 points) An elephant has a mass of 4.28 tons, how heavy is the elephant in grams? Given that there are exactly 2000 lbs in a ton and 453.6 grams per lb, write both of these relationships as conversion factors and then use dimensional analysis to solve the problem.

Conversion factor relating pounds(lb) and tons $\frac{2000 lb}{1 ton}or \frac{1 ton}{2000 lb}$

Conversion factor relating pounds and grams $\frac{1 lb}{453.6 g}or \frac{453.6 g}{1 lb}$

$$?g elephant=4.28 ton×\frac{2000 lb}{1 ton}×\frac{453.6 g}{1 lb}=3.88 × 10^{6} g elephant$$

Chemistry 115 Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Quiz 1b

Dr. Cary Willard February 5, 2014

All work must be shown to receive credit. Use correct significant figures.

1. (4 points) What is wrong with the expression “That is just a theory,” if by theory the speaker is referring to a scientific theory?

Scientific theories are backed by extensive data and have a high probability of being correct. Often people will refer to any idea, tested or not, as a theory. This does not meet the scientific definition of a theory. Scientific theories cannot be considered absolute truths however because science allows anything to be questioned and tested.

1. (2 points) Write the name or symbol for the following elements
	1. Silicon Si
	2. Br bromine
2. (4 points) Write the following measurements in scientific notation with 4 significant figures.
	1. 674974891591 g 6.750 x 1011 g
	2. 0.00000574621 mL 5.746 x 10-6 mL
3. (4 points) Perform the following calculations and give the answer to the correct number of significant figures.
	1. 68.47 mL + 835.672 mL = 904.14 mL
	2. $\frac{8.34 g }{5.2574 mL}=$ 1.59 g/mL
4. (6 points) An elephant has a mass of 5.17 tons, how heavy is the elephant in grams? Given that there are exactly 2000 lbs in a ton and 453.6 grams per lb, write both of these relationships as conversion factors and then use dimensional analysis to solve the problem.

Conversion factor relating pounds(lb) and tons $\frac{2000 lb}{1 ton}or \frac{1 ton}{2000 lb}$

Conversion factor relating pounds and grams $\frac{1 lb}{453.6 g}or \frac{453.6 g}{1 lb}$

$$?g elephant=5.17 ton×\frac{2000 lb}{1 ton}×\frac{453.6 g}{1 lb}=4.69 × 10^{6} g elephant$$

Chemistry 115 Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Quiz 1c

Dr. Cary Willard February 5, 2014

All work must be shown to receive credit. Use correct significant figures.

1. (4 points) What is wrong with the expression “That is just a theory,” if by theory the speaker is referring to a scientific theory?

Scientific theories are backed by extensive data and have a high probability of being correct. Often people will refer to any idea, tested or not, as a theory. This does not meet the scientific definition of a theory. Scientific theories cannot be considered absolute truths however because science allows anything to be questioned and tested.

1. (2 points) Write the name or symbol for the following elements
	1. Iron Fe
	2. N nitrogen
2. (4 points) Write the following measurements in scientific notation with 4 significant figures.
	1. 637959456481 cm 6.380 x 1011 cm
	2. 0.00005715115 kg 5.715 x 10-5 kg
3. (4 points) Perform the following calculations and give the answer to the correct number of significant figures.
4. 68.4 mL + 3.4877 mL = 71.9 mL
5. $\frac{4.467 g }{3.36654 mL}=$ 1.327 g/mL
6. (6 points) The world’s largest cup of coffee contains 72.3 gallons of coffee, what is the volume of the coffee in mL? Given that there are exactly 4 qt in a gal and 946 mL in a qt, write both of these relationships as conversion factors and then use dimensional analysis to solve the problem.

Conversion factor relating gallons and quarts $\frac{4 qt}{1 gas}or \frac{1 gal}{4 qt}$

Conversion factor relating quarts and milliliters $\frac{1 qt}{946 mL}or \frac{946 mL}{1 qt}$

$$?mL coffee=72.3 gal×\frac{4 qt}{1 gal}×\frac{946 mL}{1 qt}=2.74 × 10^{5} mL coffee$$

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Quiz 1d

Dr. Cary Willard February 5, 2014

All work must be shown to receive credit. Use correct significant figures.

1. (4 points) What is wrong with the expression “That is just a theory,” if by theory the speaker is referring to a scientific theory?

Scientific theories are backed by extensive data and have a high probability of being correct. Often people will refer to any idea, tested or not, as a theory. This does not meet the scientific definition of a theory. Scientific theories cannot be considered absolute truths however because science allows anything to be questioned and tested.

1. (2 points) Write the name or symbol for the following elements
	1. Silicon Si
	2. Cu copper
2. (4 points) Write the following measurements in scientific notation with 4 significant figures.
	1. 368471159156 cm 3.685 x 1011 cm
	2. 0.00000185029648 kg 1.850 x 10-6 kg
3. (4 points) Perform the following calculations and give the answer to the correct number of significant figures.
4. 21.8 mL + 5.4875 mL = 27.3 mL
5. $\frac{4.467 g }{2.84753 mL}=$ 1.569 g/mL
6. (6 points) The world’s largest cup of coffee contains 91.7 gallons of coffee, what is the volume of the coffee in mL? Given that there are exactly 4 qt in a gal and 946 mL in a qt, write both of these relationships as conversion factors and then use dimensional analysis to solve the problem.

Conversion factor relating gallons and quarts $\frac{4 qt}{1 gas}or \frac{1 gal}{4 qt}$

Conversion factor relating quarts and milliliters $\frac{1 qt}{946 mL}or \frac{946 mL}{1 qt}$

$$?mL coffee=91.7 gal×\frac{4 qt}{1 gal}×\frac{946 mL}{1 qt}=3.47 × 10^{5} mL coffee$$