CHM 151 Quiz 2a 25 Pts Fall 2009 Name: Key

SHOW ALL WORK TO RECEIVE CREDIT

G = 10^9, M = 10^6, k = 10^3, c = 10^{-2}, m = 10^{-3}, μ = 10^{-6}, n = 10^{-9} , 2.54 cm = 1 in, 12 in = 1 ft, 5280 ft = 1 mile, 3 feet = 1 yd, 60 sec = 1 min, 1 hr = 60 min, 4 quarts = 1 gal, 2 pints = 1 quart, 454 g = 1 lb.

1. (5 Pts) A car is traveling at a speed of 35 km/hr. Determine how fast the car is going in cm/second.

$$\frac{35 \times 10^3 \text{ m}}{\text{hr}} \left| \frac{\text{c}}{10^{-2}} \right| \frac{\text{hr}}{3600 \text{ s}} = 970 \frac{\text{cm}}{\text{s}}$$

2. (5 Pts) Chloroform, $CHCl_3$, has a density of 1.48 g/mL. Determine the mass of 452 mL of chloroform.

$$\frac{452 \text{ mL}}{} \left| \frac{1.48 \text{ g}}{\text{mL}} \right. = 669 \text{ g}$$

3. (8 Pts) Complete the following table:

Element or ion name	Element or ion symbol	Number of Protons	Number of Electrons	Number of Neutrons
nitrogen-15	N-15	7	7	8
carbon-12	C-12	6	6	6
A magnesium-25 **cation**	$^{25}_{12}Mg^{2+}$	12	10	13
An fluorine-19 **anion**	$^{19}_{9}F^{1-}$	9	10	10

4. (2 Pts) Determine the answer with the correct number of significant figures for the following problem. (Assume each number is a measurement) $\dfrac{25.4 - 17.2}{123} =$ 0.067

5. (5 Pts) The recommended adult dose of Elixophyllin®, a drug used to treat asthma, is 6 mg/kg of body mass. Calculate the dose in milligrams for a 185 lb person.

$$\frac{185 \text{ lb}}{} \left| \frac{454 \text{ g}}{1 \text{ lb}} \right| \frac{\text{kg}}{10^3} \left| \frac{6 \text{ mg "Eli"}}{\text{kg}} \right. = 500 \text{ mg}$$

CHM 151 Quiz 2B 25 Pts Fall 2009 Name: Key

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G = 10^9, M = 10^6, k = 10^3, c = 10^{-2}, m = 10^{-3}, μ = 10^{-6}, n = 10^{-9} , 2.54 cm = 1 in, 12 in = 1 ft, 5280 ft = 1 mile, 3 feet = 1 yd, 60 sec = 1 min, 1 hr = 60 min, 4 quarts = 1 gal, 2 pints = 1 quart, 454 g = 1 lb.

1. (5 Pts) Chloroform, $CHCl_3$, has a density of 1.48 g/mL. Determine the mass of 652 mL of chloroform.

$$\frac{652\ \cancel{mL} \mid 1.48\ g}{\cancel{mL}} = 965\ g$$

2. (5 Pts) A car is traveling at a speed of 45 km/hr. Determine how fast the car is going in millimeters/second.

$$\frac{45 \times 10^3\ m \mid m \mid \cancel{hr}}{\cancel{hr} \mid 10^{-3} \mid 3600\ s} = 12500\ \frac{mm}{s}$$

$$12000\ \frac{mm}{s}$$

3. (8 Pts) Complete the following table:

Element or ion name	Element or ion symbol	Number of Protons	Number of Electrons	Number of Neutrons
nitrogen-14	N-14	7	7	7
carbon-13	C-13	6	6	7
An chlorine-37 **anion**	$^{37}_{17}Cl^{1-}$	17	18	20
A magnesium-23 **cation**	$^{23}_{12}Mg^{2+}$	12	10	11

4. (2 Pts) Determine the answer with the correct number if significant figures for the following problem. (Assume each number is a measurement) $\frac{\mathbf{25.4 - 17.2}}{\mathbf{123}} =$ 0.067

5. (5 Pts) The recommended adult dose of Elixophyllin®, a drug used to treat asthma, is 6 mg/kg of body mass. Calculate the dose in milligrams for a 195 lb person.

$$\frac{195\ \cancel{lb} \mid 454\ g \mid \cancel{k} \mid 6\ mg\ \text{"El"}}{\cancel{lb} \mid 10^3 \mid \cancel{kg}\ \cancel{k}} = 531\ mg$$

$$500\ mg$$